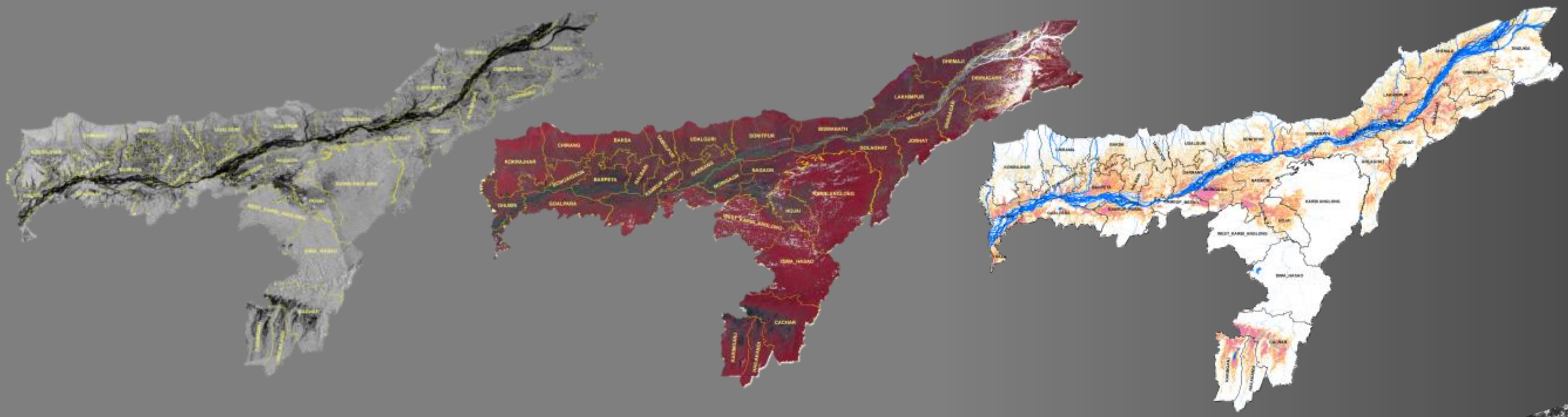
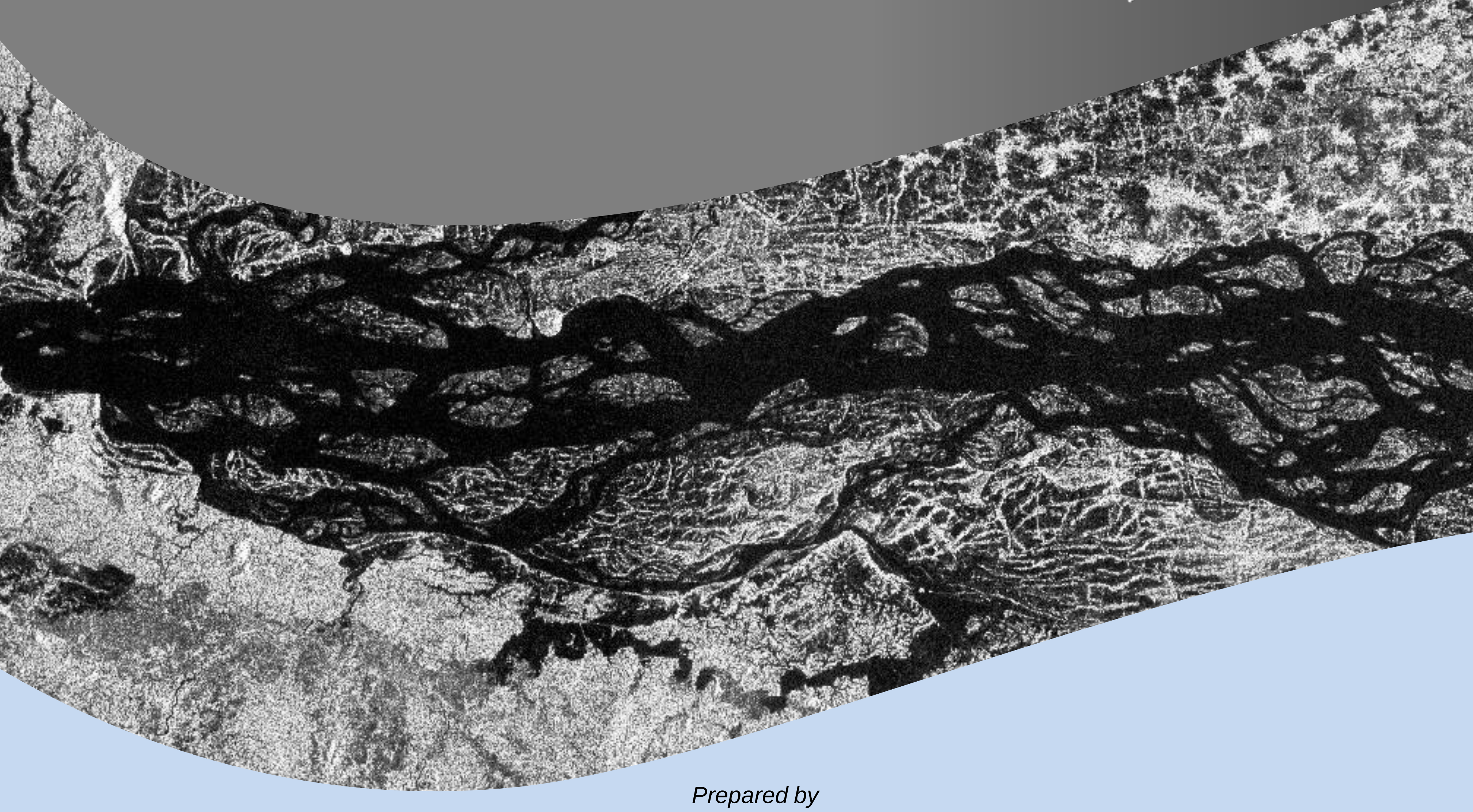
Flood Hazard Zonation Atlas of Assam

- using multi-sensor satellite data (1998-2023)





Prepared by

National Remote Sensing Centre (NRSC)
Indian Space Research Organisation (ISRO)
Department of Space, Government of India

In Association with

National Disaster Management Authority
Ministry of Home Affairs, Government of India

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Assam State Disaster Management Authority
Government of Assam

June 2025

Version -3 (1998-2023)

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June 2025

Document Control Sheet

1.	Security Classification	Official		
2.	Distribution	NRSC/ISRO, MHA, MoJS, IMD, GOI , Govt. of Assam		
3.	Report /Document	Version – 3.0		
4.	Report Type	Technical Report		
5.	Document Control No.	NRSC- RSA-DMSG-FMHAD-MAY,2025-TR-2791-V1.0		
6.	Title	Flood Hazard Zonation Atlas of Assam - Using multi-sensor satellite data (1998-2023)		
7.	Particulars of collation	Pages : 171 Figures: 22 Tables : 27		
8.	Author (s) & Data Interpretation	**Project Team**		
9.	Affiliation of authors	National Remote Sensing Centre (NRSC), Indian Space Research Organisation (ISRO)		
10.	Scrutiny mechanism	**Report Prepared by** Dr. A V Suresh Babu Head- FMHAD,DMSG	**Reviewed by** Dr. KHV Durga Rao Group Director,DMSG	**Approved by** Deputy Director, Remote Sensing Applications Area
11.	Originating unit	National Remote Sensing Centre (NRSC)		
12.	Sponsor(s)	National Remote Sensing Centre (NRSC)		
13.	Date of Project Initiation	01.01.2024		
14.	Date of Publication	16.06.2025		
15.	**Abstract:** Flood hazard zonation is a critical process for mitigating the risks associated with flooding. It involves identifying the areas most vulnerable to flooding and determining the frequency of inundation they experience. Satellite remote sensing has emerged as a powerful tool for analysing historical and current flood data. By utilizing a comprehensive dataset spanning 26 years (1998-2023) from Indian and foreign satellites, it has become easier to pinpoint regions frequently affected by floods. This approach has created a flood hazard atlas that classifies the identified flood hazard areas into five categories, ranging from very high to very low, based on the inundation frequency. The resulting flood hazard atlas is an invaluable resource for understanding the flood situation in different districts of Assam State. It provides planners with a comprehensive understanding of the severity and frequency of flooding in various regions, which can aid in developing effective strategies to address these events. The atlas is designed to help planners identify areas that require urgent attention and prioritize resources accordingly. It depicts the overall flood situation in Assam through satellite images of significant flood situations, annual flood inundation statistics and village-wise flood inundation hazard categories, etc.			

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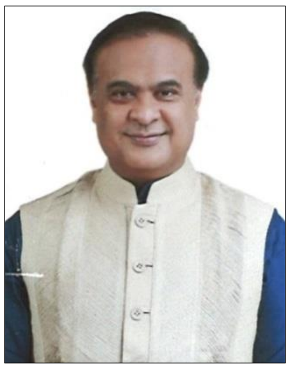

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April 3, 2025

MESSAGE

Floods in Assam are among the most devastating natural disasters, causing immense human suffering, economic loss, and environmental damage. Therefore, understanding, mitigating, and adapting to flood hazards has always been an urgent requirement in regions prone to frequent inundation.

One of the key advantages of satellite remote sensing is its ability to provide near real-time and highly accurate data. This technology allows us to rapidly assess flood situations as they unfold and offer timely support to disaster response efforts. By capturing satellite imagery and generating detailed maps of flood- affected areas, satellite technology enables emergency responders to identify priority areas for intervention, allocate resources effectively, and coordinate rescue operations quickly.

I am happy to note that the National Remote Sensing Centre (NRSC) of ISRO has supported near real-time flood mapping and monitoring in Assam since 1998. It is my pleasure to acknowledge that NRSC has prepared an updated flood hazard atlas of Assam using satellite data from 1998 to 2023, in conjunction with large-scale geo-spatial data.

I would like to commend the NRSC team for their efforts in creating the Flood Hazard Zonation Atlas for Assam. This atlas is an invaluable resource that provides comprehensive information on flood-prone areas in Assam. It will significantly enhance disaster preparedness and help mitigate the impact of floods in the region.

(Dr. Himanta Biswa Sarma)

কেশৱ মহন্ত
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MINISTER

সত্যমেৱ জয়তে

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Government of Assam
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MESSAGE

The distinctive geo-climatic conditions of the region render Assam and the entire northeastern region of India highly susceptible to natural disasters such as floods. Assam faces recurring floods and requires consistent attention to either strategize flood prevention or handle the flood emergency across multiple districts simultaneously due to the prolonged duration of the floods.

Satellites play a crucial role in continuously monitoring flood situations across extensive spatial areas, providing repeated coverage of large floodplains during floods. This enables the creation of rapid real-time flood extent maps. Remote sensing offers significant advantages, especially for emergency response and comprehensive large-scale analyses. The long-term collaboration between NRSC/ISRO and Assam State Disaster Management Authority, spanning 25 years, has been highly valuable. It has led to a detailed characterization and in-depth analysis of the flood situation in Assam, explicitly focusing on describing individual villages in terms of flood hazard.

Flood hazard zonation atlases serve as valuable tools for flood management. They aid in identifying areas at risk and assessing the impact of flooding as part of a comprehensive flood mitigation plan. Additionally, they assist in land-use planning by advocating for limited development in flood-prone areas, suggesting strategies to mitigate risk, and offering valuable information for implementing flood protection measures.

I congratulate the NRSC and ASDMA teams for their commendable efforts in producing the Flood Hazard Zonation Atlas. Based on long-term satellite data analysis (1998-2023) and field validation, this valuable resource can be effectively utilized by local authorities at the district/circle level to plan for mitigating flood risks. It has the potential to raise awareness among local communities about flood-prone areas, contributing to better preparedness and disaster management.

(Keshab Mahanta)

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FOREWORD

Flood is a major natural hazard that effects many parts of the country almost every year and Assam is one among the states that witness flood recurrently. It results in loss of precious lives, damage to infrastructure & property, loss of productive agriculture land etc., in addition to the associated economic burden. Identification of the areas that are susceptible to flood hazard is important to plan and implement suitable mitigation measures. Space technology provides input for flood disaster risk reduction.

Under the Disaster Management Support Programme (DMSP), Indian Space Research Organisation(ISRO) enables space based inputs for disaster management support by the concerned nodal Ministry/ Department for major natural hazards. As part of this. National Remote Sensing Centre (NRSC)/ ISRO has been generating flood inundation maps and value added satellite images for major riverine and cyclonic floods, over more than two decades. The derived information is disseminated to the respective state disaster management departments, as well as to Ministry of Home Affairs and National Disaster Management Authority (NDMA), for supporting disaster management & risk reduction measures.

Long-term data on flood inundation helps to map the flood hazard zones. NRSC/ISRO released the flood Hazard Zonation Atlas of Assam in 2011, and was updated in 2015.The present atlas incorporates the flood inundation information for the 1998-2023 time frame. Coordinated efforts of NRSC/ISRO, Assam State Disaster Management Authority and NDMA helped in realizing the present atlas.

I am sure that the information content in the atlas would be helpful for Govt. of Assam for planning long-term mitigation measures towards minimizing the damage due to flood disaster in the State.

April 09, 2025

(व. नारायणन / V. Narayanan)

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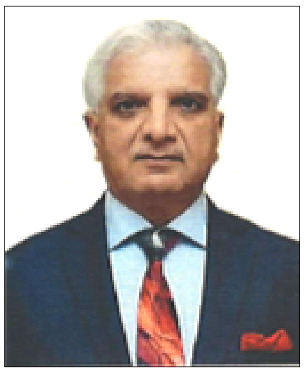

MESSAGE

The prime Minister's 10-point Agenda for Disaster Risk Reduction emphasizes leveraging technology to enhance the efficiency and effectiveness of disaster risk management efforts. Our shared goal is to create a safe and disaster resilient India through an integrated, dynamic, and technology-driven approach to disaster risk management. The National Disaster Management Authority (NDMA) has initiated numerous programs that leverage cutting-edge technology to enhance the effectiveness of disaster risk reduction efforts. A key initiative involves developing detailed hazard profiles of various natural hazards to facilitate comprehensive vulnerability and risk assessments. Flooding is one of the most frequent and devastating natural disasters, resulting in significant loss of lives and substantial economic impact. Currently, many State Governments do not have access to detailed Flood Hazard Profiles, which are crucial for effective planning and Flood Mitigation strategies. In this context, the initiatives of the National Remote Sensing Centre (NRSC) and the Indian Space Research Organization (ISRO) to employ space technology for Disaster Risk Reduction are exemplary and commendable. The Expert Committee constituted by the NDMA has advised NRSC to prepare Flood Hazard Atlases for the country's most flood-prone rivers using historical satellite data. This initiative has led to the creation of a comprehensive Flood Hazard Atlas for Assam, developed using satellite data from 1998 to 2023, enhanced by ground truth validation. This atlas represents a significant advancement in our disaster risk management capabilities. I am confident that the updated Flood Hazard Atlas prepared by NRSC and ISRO, utilizing advanced space-based data, will provide invaluable information. This resource will be instrumental in the efficient management of flood hazards and in the development of robust disaster management plans for the state of Assam. By leveraging this technology, we can make significant strides towards minimizing the impact of floods and enhancing the resilience of our communities.

(Rajendra Singh)

Dr. Ravi Kota, IAS
Chief Secretary
Government of Assam

सत्यमेव जयते

ড° ৰবি কোটা, ভাঃ প্রঃ সেঃ
মুখ্য সচিব
অসম চৰকাৰ

MESSAGE

The recurring floods and prolonged inundation in several parts of Assam during every monsoon season pose significant challenges for the residents and necessitate robust administrative support for relief, rehabilitation, and flood mitigation. Addressing these issues requires continuous planning and management to reduce flood disaster risks.

I am pleased to acknowledge the vital role of the National Remote Sensing Centre (NRSC, ISRO) in supporting the Assam State Administration for the past 26 years. Annually, NRSC provides near real-time spatial flood inundation maps using multi-sensor satellite data. This valuable spatial information is utilized by the Assam State Disaster Management Authority (ASDMA) for flood management planning and mitigation. The maps are disseminated to district and circle-level officers to enhance their flood management strategies.

The creation of the Flood Hazard Zonation Atlas, which incorporates 26 years of flood inundation data and categorizes hazards at various administrative levels, including villages, is highly commendable. This atlas serves as a crucial tool for field authorities involved in flood disaster response, enabling them to make informed decisions and implement effective measures.

I extend my congratulations to the NRSC/ISRO team for developing the Flood Hazard Zonation Atlas using multi mission satellite data of 1998-2023. This achievement, made possible through the active support of National Disaster Management Authority, Government of India and ground validation efforts prompted by the ASDMA, reflects a significant advancement in flood disaster management. The collaboration between these organizations exemplifies a successful model of using advanced technology and coordinated efforts to mitigate the impact of natural disasters.

Date: 03/04/2025

03/04

(Dr. Ravi Kota, IAS)

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Distinguished Scientist & Director

PREFACE

India's geography and climate make it especially vulnerable to flooding due to its vast network of rivers, such as the Ganges and Brahmaputra, Sutlej, Beas, Yamuna, Godavari and other rivers. Despite ongoing efforts to mitigate the impact by constructing dams, barriers, and early warning systems, the threat of flooding remains an essential and urgent concern. Addressing this challenge will require comprehensive spatial and temporal information to draw the correct decisions for planning the mitigation measures that can be implemented on the ground.

The Disaster Management Support Programme (DMSP) is a commendable initiative launched by the Indian Space Research Organisation (ISRO) and the Department of Space (DOS) to leverage satellite remote sensing data to provide near-real-time products and services to support various phases of disasters. NRSC has enabled the creation of a reliable and long-term geospatial database on flood hazards and associated risks through near real-time inundation mapping and monitoring.

Flood hazard maps for the Assam State are generated using historical multi-temporal satellite data from 1998 to 2023. The maps were generated using 389 Indian Remote Sensing (IRS) Satellites and satellite data from other space missions obtained through the International Charter. The satellite data analysis allows for determining the spatial extent of flood inundation and the frequency of flooding in a specific area. The schema proposed by the Expert Committee on Flood Hazard Zonation, established by the National Disaster Management Authority is used to classify the flood hazard zones. Furthermore, the flood hazard index for each district was calculated by incorporating river water level data from various gauge stations provided by the Central Water Commission.

The prepared flood hazard atlas is thoroughly verified with the ground information by the Government of Assam's district administration (through ASDMA). Suggestions provided by Assam State Disaster Management Authority (ASDMA) are incorporated in the final version of the atlas. Information on flood hazard areas derived from satellite remote sensing data acquired during flooding conditions will significantly contribute to flood risk management in the state of Assam.

Date: May 01, 2025

(Prakash Chauhan)

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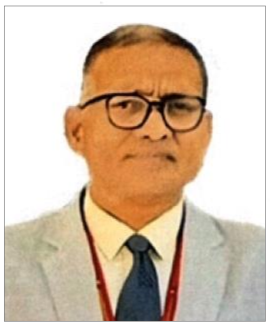

MESSAGE

With its vast network of rivers, Assam is highly prone to natural disasters, particularly floods and erosion, which significantly impede the state's overall development. The Brahmaputra and Barak Rivers and their numerous tributaries cause extensive damage due to flooding during the monsoon season each year. Assam's flood and erosion challenges are unparalleled in their scale, duration, and intensity, making them the most severe and distinctive in the country. Major floods have occurred in multiple years, often with 3-4 waves in a single year, causing prolonged adversity for the people and placing a significant burden on the state's economy.

The use of satellite remote sensing analysis allows for the mapping of flooding extent, either in real-time or retrospectively. This technology is incredibly valuable for flood emergency response as it provides ongoing observational information about the extent of floods in large areas. Real-time flood inundation information is crucial for assessing damage, organizing rescue operations, and prioritizing relief resource allocation. Over the past 25 years, NRSC/ISRO has been conducting this analysis, offering continuous support for flood disaster management. Additionally, ISRO is updating the Flood Hazard Zonation Atlas for the second time, incorporating data from 1998-2023. This revised atlas will provide a detailed description of the hazard scenario at the village level. The flood hazard maps derived from this data benefit early planning, such as identifying at-risk areas and guiding land-use planning to limit development in flood-prone regions.

The Assam State Disaster Management Authority (ASDMA) has been instrumental in harnessing the advantages of satellite images and flood inundation data to monitor and analyze flood-prone areas. The authority wholeheartedly acknowledges the dedication of the NRSC team in conducting satellite data analysis and the ASDMA team for their on-site validation efforts. Their collaborative work has been crucial in developing the comprehensive Flood Hazard Zonation Atlas for Assam State.

Gyanendra Tripathi
1/4/2025

(Gyanendra Dev Tripathi)

Acknowledgment

We sincerely express gratitude to Dr. V. Narayanan, Secretary, Department of Space and Chairman, ISRO, for his encouragement, invaluable support and guidance to the Disaster Management Support (DMS) Programme activities.

We express our sincere gratitude to Dr. Prakash Chauhan, Director, National Remote Sensing Centre (NRSC), for his encouragement, invaluable guidance, and support throughout the process of completion of the study at NRSC.

We sincerely thank Shri Shantanu Bhatawdekar, former Scientific Secretary, ISRO, and Shri M. Ganesh Pillai, present Scientific Secretary, ISRO for their guidance in disaster management support activities.

We thank Shri Rajendra Singh, Member & HoD, National Disaster Management Authority (NDMA), for collaboration, policy-level guidance, and motivation in preparing the Flood Hazard Zonation Atlas for Assam.

We sincerely thank Dr. Ravi Kota, Chief Secretary Govt of Assam, for the support and encouragement extended towards developing the Flood Hazard Zonation Atlas for Assam.

We extend our sincere thanks to Shri Gyanendra Dev Tripathi, Chief Executive Officer, Assam State Disaster Management Authority (ASDMA), for his extensive support and encouragement in preparing the Flood Hazard Zonation Atlas of Assam and for facilitating field studies validation.

We acknowledge the support and guidance provided by P. Srinivasulu, Associate Director, NRSC, and Dr. K. Sreenivas, former DD RSA, in carrying out this task.

The project team also sincerely thanks Dr. J.V. Thomos, Director, EDPO, and Dr. John Mathew, Associate Programme Director, DMSP, EDPO, ISRO, for their support and cooperation.

We thank all the District Commissioners, Chief Executive Officers, DDMA’s, Revenue Circle Officers, District Project Officers and field officers of Assam State Disaster Management Authority (ASDMA) for their valuable ground validation efforts in highly flood-prone areas.

Acknowledgments are due to all the former colleagues who has contributed for near real time flood mapping and monitoring activities at NRSC.

We would like to thank everyone who has directly or indirectly contributed to the preparation of the atlas.

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District Commissioners & Chairperson
District Disaster Management Authorities (DDMA)

EXECUTIVE SUMMARY

The creation of a Flood Hazard Zonation Map is a crucial step in planning flood damage mitigation measures without resorting to structural interventions. These maps are instrumental in coordinating and overseeing developmental activities in flood-prone areas and constructing relief, rescue, and healthcare facilities. Periodic satellite observations provide comprehensive view of natural disasters, helps to minimize the risk of such events in the country. Over time, the National Remote Sensing Centre (NRSC), Indian Space Research Organisation (ISRO) has compiled a database of spatial flood inundation information for significant floods and cyclones across the country. These flood maps, developed by NRSC/ISRO, are invaluable for identifying flood-affected areas. Responding to a request from the National Disaster Management Authority (NDMA), NRSC/ISRO has produced State-level and District-level Flood Hazard Zonation Atlases for Assam, utilizing historical satellite data covering 26 years (1998 to 2023). This release marks the third version of the Atlas for Assam state, following earlier versions based on the datasets from 1998-2007 (Version 1) and 1998-2015 (Version 2).

The Flood Hazard Zonation Atlas of Assam State was meticulously prepared through an in-depth study of flood scenarios using historic satellite-derived spatial flood inundation layers from 1998 to 2023. The study included the analysis of flood frequency, flood inundation areas at administrative levels (district, village), water level observations at identified river gauge sites along the main Brahmaputra river and its tributaries, and the number of peak flood events. A total of 389 Indian Remote Sensing (IRS) satellite and foreign satellite datasets (optical and microwave) were acquired, covering various flood magnitudes in Assam State. These datasets were thoroughly analyzed to generate flood hazard maps.

Based on satellite-derived flood inundation data covering 1998 to 2023, it has been estimated that the cumulative flood-affected area in Assam State amounts to 27.08 lakh hectares. This assessment is based on images compiled at a 50m x 50m grid (spatial resolution of 50m on the ground). Each pixel has been evaluated for temporal and spatial flood inundation frequency through comprehensive historical data analysis. The resulting flood hazard areas have been classified into five categories, ranging from very low to very high hazard zones, by the hazard classification criteria established by an expert committee appointed by NDMA. Additionally, the flood hazard category for each village has been determined based on the predominant category (in terms of area percentage) and documented for each administrative division - Circle, spanning 173 circles across 35 districts.

The analysis of temporal water levels at 31 river gauge points (CWC Stations) from 1998 to 2023 has provided valuable insights about the frequency and duration of flood events. This information offers a comprehensive overview of the flood situation over the past 26 years at each gauge station. Additionally, the Flood Hazard Index has been assessed at the district level to gauge the severity of flood situations and factors influencing flood hazard zonation. The districts are categorized into three hazard ranks based on this assessment. Furthermore, recent satellite data have used spatial land use and land cover information to estimate the correlation between crop-grown areas in Assam and flood hazard zones. Based on the study, an estimated 18.22 lakh hectares of crop-grown area is at risk of flood inundation.

The flood hazard zonation maps have undergone validation process on-site by the Assam State Disaster Management Authority (ASDMA), Assam. The validation process was carried out through its district/circle offices, and the valuable information obtained from field validation has been integrated into the Atlas. The Atlas contains comprehensive flood hazard zonation statistics at the state and district levels, presented alongside the maps.

The Flood Hazard Zonation Atlas presents an overall scenario of the flood situation in Assam through the listing of significant flood events, list of multi-sensor satellite data, specific satellite images depicting major flood events during 1998-2023, a summary of the water level fluctuation at various river gauge stations, district level flood hazard zonation maps, trends in annual flood inundation areas, graphs showing the number of flood waves at the gauge stations in each of the flood-prone districts, village level flood hazard categories with the list about each administrative revenue circles, and state levels maps viz., cumulative flood inundation map (1998-2023), flood hazard zonation map (1998-2023), crop affected areas, village level flood hazard category map. This Atlas would serve as a valuable information resource for policymakers, planners, and civil society groups and find its value towards flood hazard evaluation, sustainable development, and flood mitigation efforts and in preparing disaster management action plans at circle/district and state levels.

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1. Introduction

Flood is a natural disaster, and occurs when water accumulates in an area more quickly than it can infiltrate into the soil or be carried away by rivers, lakes, or drainage systems. Heavy rainfall, snowmelt, storm surges, dam or levee breaches, and rapid ice melting can cause these disasters. Floods significantly impact the natural environment and human communities, causing loss of life, displacement of populations, destruction of homes and infrastructure, contamination of water sources, disruption of transportation and communication networks, and damage to agriculture and economy. Effective flood management strategies such as early warning systems, land use planning, floodplain management, and infrastructure development are essential to mitigate the risks associated with floods and minimize their impacts.

Assam, located in north-eastern India, has several rivers with diverse landscape, contributing significantly to its rich biodiversity and agricultural productivity. The Brahmaputra river, known as the lifeline of Assam, is one of the largest rivers in the world in terms of discharge. It originates in Tibet as the Yarlung Tsangpo river, enters India through Arunachal Pradesh, flows through Assam, and eventually merges with the Ganges in Bangladesh. The river plays a crucial role in the economy and transportation of the region, carrying a substantial amount of sediment that enriches the fertile plains of Assam. The Barak river is another important river in Assam, originating in the Manipur Hills, flowing through Assam and Manipur, and eventually joining the Meghna river in Bangladesh. It is a major tributary of the Brahmaputra and plays a crucial role in the economy of the region.

As Assam is prone to floods annually, it is necessary to map and monitor the flood situation regularly. Flooding is a significant threat to the people and static infrastructure, where land use planning, floodplain management and infrastructure development are essential to minimize the threats associated with floods and their impacts. With proper flood management strategies, Assam can continue to leverage its natural resources and beautiful landscape for sustainable growth and development.

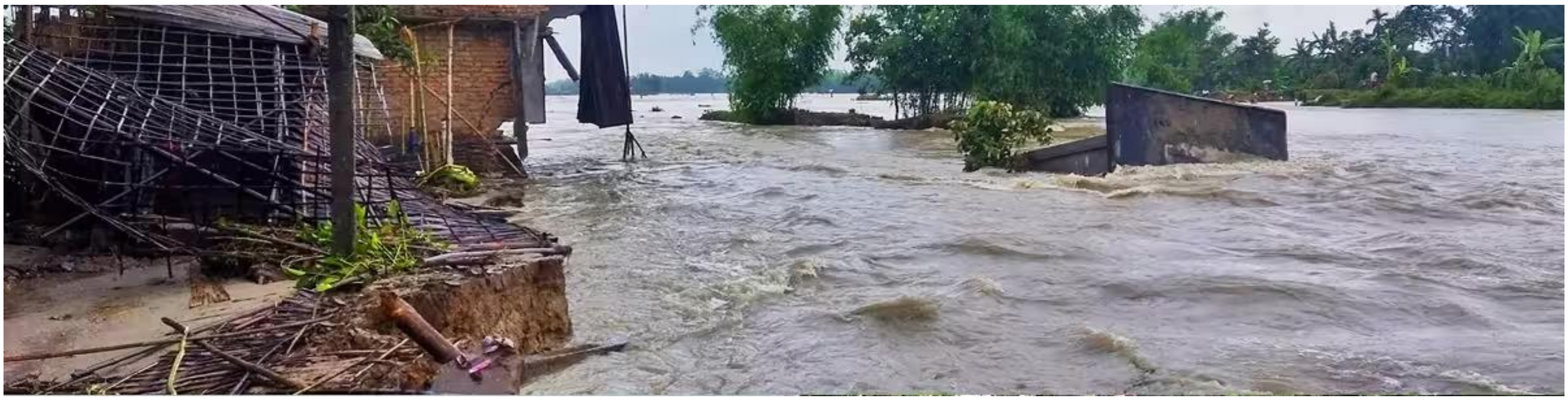


Figure 1: Field photograph showing the flood situation during 2023

Flood hazard maps are one of the very important non-structural methods of flood damage mitigation. These maps are useful in planning and regulating developmental activities in flood plains, construction of relief, rescue, and health centres. Satellites provide synoptic observations of the natural disasters at regular intervals that help in disaster risk reduction in the country. Over a period of time, National Remote Sensing Centre (NRSC), ISRO has created a repository of large data pertaining to the floods & cyclones in different areas of the Country. These historical flood maps, generated by NRSC/ISRO, are useful for identification of flood hazard areas. At the behest of the National Disaster Management Authority (NDMA), NRSC/ISRO has planned for the state level and district wise Flood Hazard Zonation Atlas of Assam State using the available historical satellite datasets spanning over 26 years (1998 to 2023).

Flood Hazard Zonation Atlas of Assam State is prepared with the detailed study on flood scenarios using the historic satellite derived spatial flood inundation layers since 1998-2023, and derived flood frequency, flood inundation areas at administrative levels (district, village), water level observations at Central Water Commission (CWC) river gauge sites along the main Brahmaputra river and tributaries, number of peak flood events. All these are explained in detail in this report through various definitions, spatial flood inundation information during 1998-2023 and in the form of maps, tables and figures.

2. Assam State

Assam, popularly known as the land of the Red River and Blue Hills, is the gateway to North East India. Geographically, the State extends from 24° to 28° North Latitude and 90° to 96° East Longitude between the foothills of the Eastern Himalayas and the Patkai and Naga Hill Ranges. The State is bordered in the North by Bhutan and in the East by Arunachal Pradesh. Along the south lie Nagaland, Manipur, and Mizoram. Meghalaya lies to the Southwest, West Bengal, and Bangladesh to the West. The State is divided into 35 administrative districts.

2.1. Administrative Setup

The State of Assam has 5 Administrative Divisions and 35 administrative districts, as shown in Table 2.1, and district-wise headquarters are listed as shown in Table 2.2. The district map of Assam is shown in Figure -1a, and the locations of Major Towns are shown in Figure 1b

2.2. Demography

Total population of Assam is 31.17 million (2011 Census). Population grew steadily from 3.29 million in 1901 to 6.70 million in 1941, while it has increased unprecedentedly to 14.63 million in 1971, 22.41 million in 1991, and 26.66 million in 2001 to reach the present level. Population Density stands as 398/km^2 and Literacy rate is 72.19%. (As per the Statistical Handbook of Assam, 2018). District-wise population details are provided in Table 2.3 .

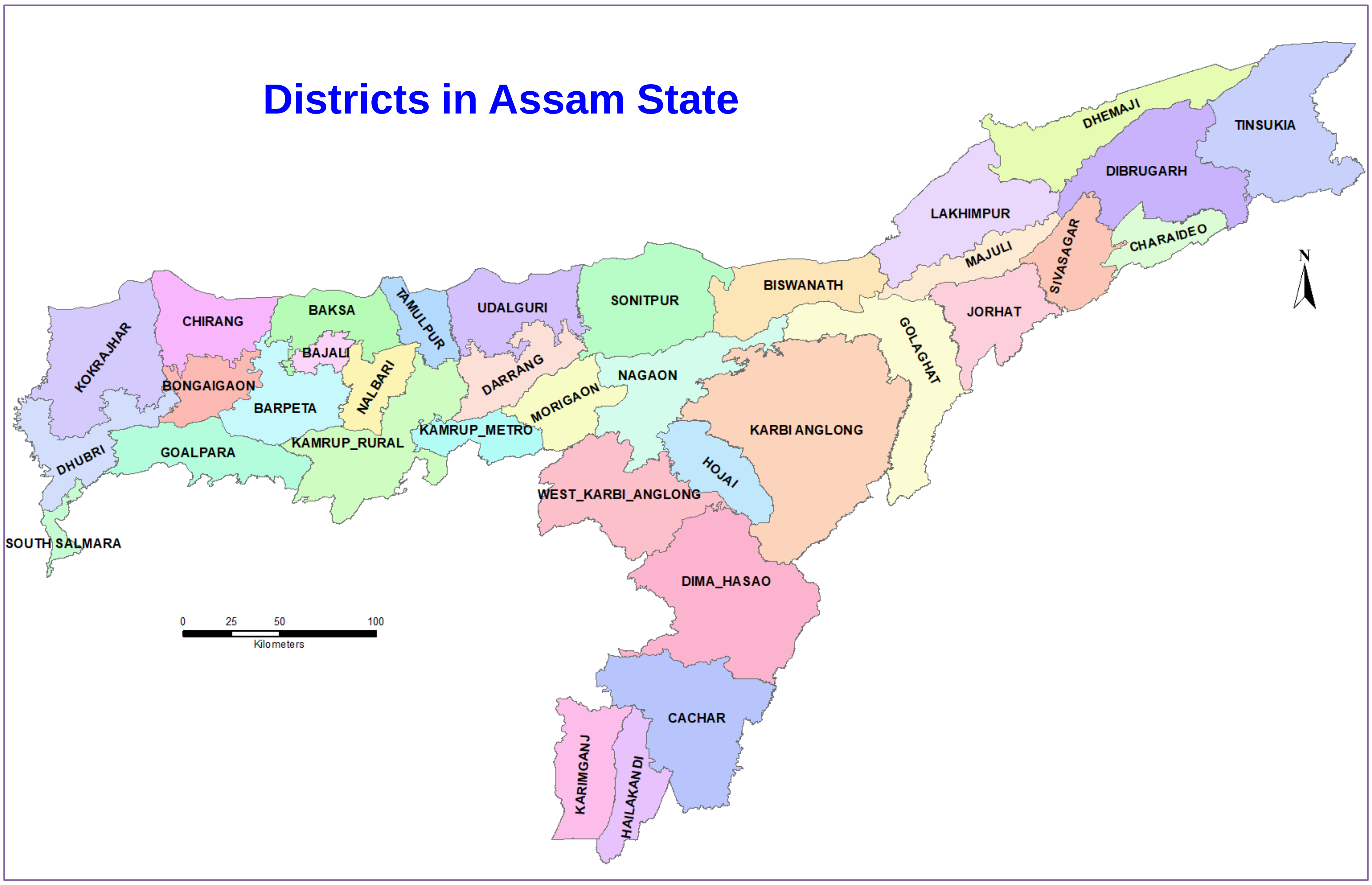

Districts in Assam State
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
MAJULI
SIVASAGAR
BISWANATH
JORHAT
SONITPUR
UDALGURI
TAMULPUR
BAKSA
CHIRANG
KOKRAJHAR
BAJALI
NALBARI
DARRANG
NAGAON
GOLAGHAT
BONGAIGAON
BARPETA
MORIGAON
KAMRUP_METRO
KAMRUP_RURAL
GOALPARA
DHUBRI
KARBI ANGLONG
HOJAI
WEST_KARBI_ANGLONG
SOUTH SALMARA
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
N
0 25 50 100
Kilometers

Figure 1a: District map of Assam

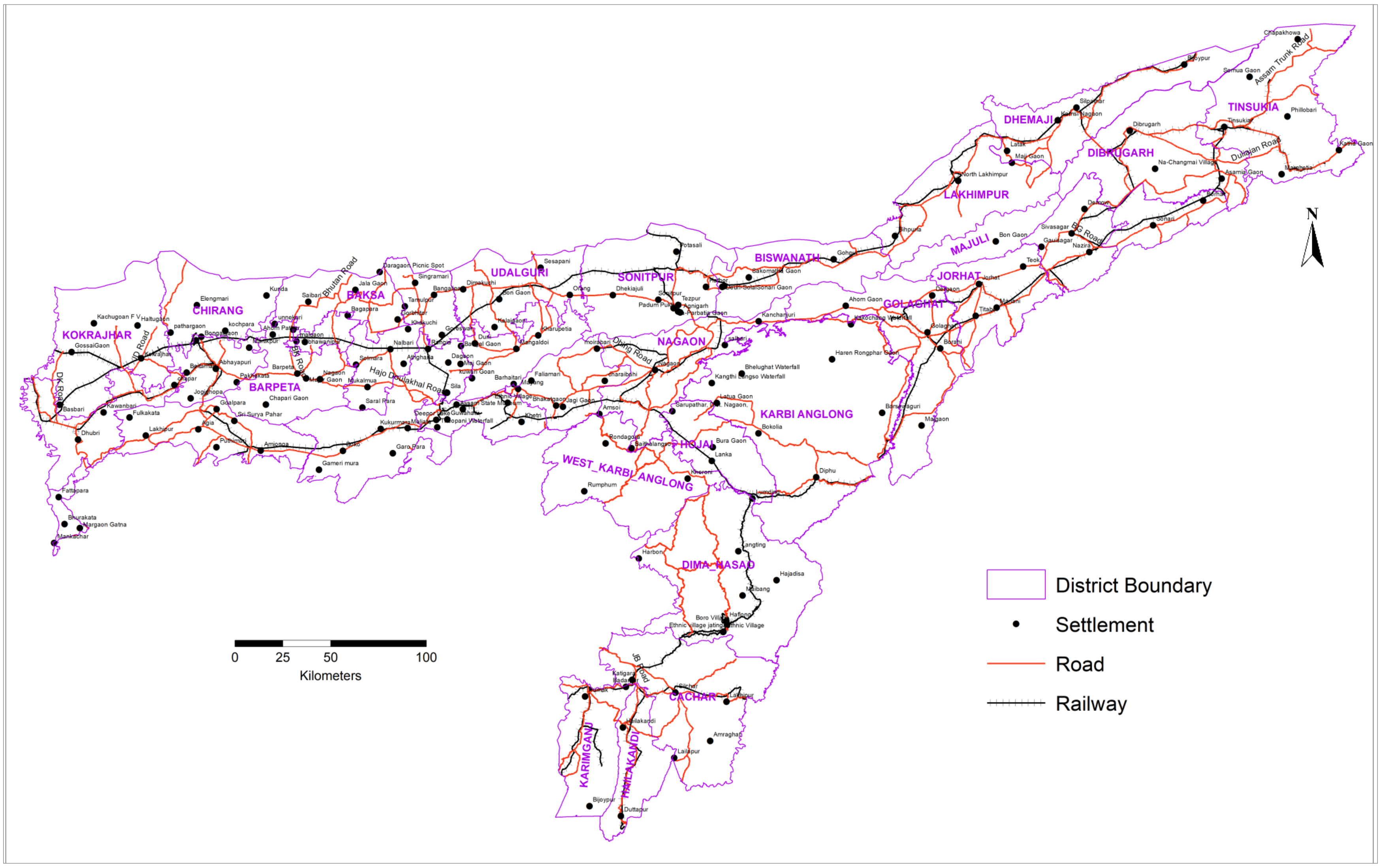

TINSUKIA
DHEMAJI
DIBRUGARH
LAKHIMPUR
MAJULI
JORHAT
GOLAGHAT
BISWANATH
SONITPUR
UDALGURI
BAKSA
CHIRANG
KOKRAJHAR
BARPETA
NAGAON
KARBI ANGLONG
HOJAI
WEST_KARBI_ANGLONG
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
Assam Trunk Road
Bhutan Road
Hajo Doboka Road
N
0 25 50 100
Kilometers
District Boundary
Settlement
Road
Railway

Figure 1b: Major towns of Assam

Table 2.1: Administrative divisions and districts of Assam State

Name of Division	Division Headquarter	Districts under Jurisdiction
North Assam	Tezpur	Udalguri, Darrang, Sonitpur, Biswanath, Lakhimpur, Dhemaji
Lower Assam	Panbazar, Guwahati	Dhubri, Kokrajhar, Bongaigaon, Goalpara, Baksa, Tamulpur, Chirang, Barpeta, Nalbari, Kamrup Rural, Kamrup Metro, South Salmara-Mankachar, Bajali
Central Assam	Nagaon	Dima Hasao, East KarbiAnglong, West KarbiAnglong, Nagaon, Morigaon, Hojai
Upper Assam	Jorhat	Dibrugarh, Tinsukia, Sibsagar, Jorhat, Golaghat, Charaideo, Majuli
Barrak Velley	Silchar	Cachar, Hailakandi, Karimganj

Table 2.2: Districts in Assam state and theirs headquarters

S No.	District	Headquarters
1	Bajali	Bajali
2	Baksa	Mushalpur
3	Barpeta	Barpeta
4	Biswanath	Biswanath
5	Bongaigaon	Bongaigaon
6	Cachar	Silchar
7	Charaideo	Charaideo (Sonari)
8	Chirang	Kajalgaon
9	Darrang	Mangaldoi
10	Dhemaji	Dhemaji
11	Dhubri	Dhubri
12	Dibrugarh	Dibrugarh
13	Dima Hasao	Haflong
14	Goalpara	Goalpara
15	Golaghat	Golaghat
16	Hailakandi	Hailakandi
17	Hojai	Sankardev Nagar
18	Jorhat	Jorhat

S No.	District	Headquarters
19	Kamrup Metro	Guwahati
20	Kamrup Rural	Amingaon
21	Karbi Anglong	Diphu
22	Karimganj	Karimganj
23	Kokrajhar	Kokrajhar
24	Lakhimpur	Lakhimpur
25	Majuli	Majuli
26	Morigaon	Morigaon
27	Nagaon	Nowgong
28	Nalbari	Nalbari
29	Sivasagar	Sivasagar
30	Sonitpur	Tezpur
31	South Salmara	South Salmara
32	Tamulpur	Tamulpur
33	Tinsukia	Tinsukia
34	Udalguri	Udalguri
35	West Karbi Anglong	Hamren

Table 2.3: District-wise details of population

Sl.No	Districts	No.of Villages	Population(%)		Sex Ratio	Distribution of Population(%)		Pop Density	Literacy Rate	No.of Kutcha Houses #	No.of Pucca Houses #	Total No. of Pucca & Kutcha Houses #
			Male	**Female**		**Urban**	**Rural**					
1	Kokrajhar	1068	51.05	48.95	959	6.19	93.81	269	65.22	136000	36145	172145
2	Dhubri	1091	51.19	48.81	953	10.45	89.55	896	58.34	299855	85053	384908
3	South Salmara											
4	Goalpara	829	50.91	49.09	964	13.69	86.31	553	67.37	146624	40604	187228
5	Barpeta	835	51.19	48.81	953	8.70	91.30	742	63.81	251332	69635	320967
6	Morigaon	632	50.83	49.17	967	7.66	92.34	617	68.03	142989	39995	182984
7	Nagaon	1412	50.96	49.04	962	13.09	86.91	711	72.37	374661	120866	495527
8	Hojai											
9	Sonitpur	1876	51.14	48.86	956	9.04	90.96	370	67.34	251122	98539	349661
10	Biswanath											
11	Lakhimpur	1184	50.83	49.17	968	8.76	91.24	458	77.20	149279	37539	186818
12	Dhemaji	1319	51.19	48.81	953	7.04	92.96	212	72.70	113883	14896	128779
13	Tinsukia	1168	51.22	48.78	952	19.94	80.06	350	69.66	148609	72427	221036
14	Dibrugarh	1348	51.00	49.00	961	18.38	81.62	392	76.05	164899	77334	242233
15	Sivasagar	875	51.19	48.81	954	9.56	90.44	431	80.41	157050	66999	224049
16	Charaideo											
17	Jorhat	848	50.98	49.02	962	20.19	79.81	383	82.15	141957	63658	205615
18	Majuli											
19	Golaghat	1125	50.91	49.09	964	9.16	90.84	305	77.43	173805	34509	208314
20	Karbi Anglong	2921	51.26	48.74	951	11.81	88.19	92	69.25	142125	11425	153550
21	West Karbi Anglong											
22	Dima Hasao	695	51.75	48.25	932	29.19	70.81	44	77.54	28245	2737	30982
23	Cachar	1040	51.04	48.96	959	18.17	81.83	459	79.34	236414	86708	323122
24	Karimganj	936	50.94	49.06	963	8.93	91.07	679	78.22	146623	78403	225026
25	Hailakandi	331	51.25	48.75	951	7.30	92.70	497	74.33	100733	31064	131797
26	Bongaigaon	563	50.87	49.13	966	14.86	85.14	979	69.74	106181	28780	134961
27	Chirang	508	50.78	49.22	969	7.33	92.67	251	63.55	16808	14434	91242
28	Kamrup	1068	51.30	48.70	949	9.38	90.62	489	75.55	205285	97566	302851
29	Kamrup metro	216	51.64	48.36	936	82.70	17.20	1313	88.71	33024	24771	57795
30	Nalbari	456	51.32	48.68	949	10.72	89.28	733	78.63	106938	45799	152737
31	Baksa	690	50.66	49.34	974	1.29	98.71	387	69.25	171274	23756	195030
32	Darrang	561	51.19	48.81	954	5.98	94.02	586	63.08	146415	38462	184877
33	Udalguri	800	50.70	49.30	973	4.52	95.48	413	65.41	120912	39518	160430
Total		**26395**	**51.08**	**48.92**	**958**	**14.10**	**85.90**	**398**	**72.19**			

*Newly bifurcated Six(6) districts

Source: Statistical Handbook Assam-2018

(# Source: Socio Economic and Caste Census,2011)

(Note: Bajali carved out of Barpeta district was established on 12th January 2021 as the 34th District and Population of 2,53,876) and Tamulpur is the 35th district carved out of Baksa district on 23rd January 2022.(Population of 3,89,150) Being the new districts, disaggregated population and Habitation data of Bajali and Tamulpur is yet to be officially notified

2.3. Physiography

The evolution of the modern day topographic and physiographic architecture of Assam, led to development of the mighty Brahmaputra Valley, where the Central Assam range comprises of the Mikir and North Cachar (Barail) hills and the Barak Valley extending south-westward into alluvial plains of Bangladesh, which are due to the effect of several complicated cycles of geological events of the North East India.

The state has been broadly divided into the following physiographic domains:

(i) Brahmaputra valley: The vast alluvial plains of Brahmaputra valley occupy most of the North Assam covering Goalpara, Kokrajhar, Dhubri, Kamrup, Nalbari, Barpeta, Nagaon, Darrang, Sonitpur, Sibsagar, Jorhat, Golaghat, Lakhimpur and Dibrugarh districts. The Brahmaputra valley is bounded by Arunachal Himalaya in the north and northeast, Patkai – Naga - Lushai range of Nagaland and the Shillong Plateau in the south and southeast. The Brahmaputra valley with an average elevation from 50 to 120 m above Mean Sea Level (m.s.l) represents unique landscape comprising of an 800 km long and 130 km wide valley, the Karbi Anglong hills and Barail range comprising the North Cachar hills in the central part.

(ii) Central Assam Hills: The Central Assam which essentially is a hilly terrain comprised of Mikir Hill in Karbi Anglong and North Cachar Hill districts.

(iii) Barak valley: The hilly and alluvial terrain in the south covers the Cachar and Karimganj districts in the Barak valley.

2.4. Geography

As per plate tectonics, Assam is in the easternmost projection of the Indian Plate, where the plate is thrusting underneath the Eurasian Plate, creating a subduction zone in the Himalayas. Assam possesses a unique geomorphic environment, with plains, dissected hills of the South Indian Plateau system, and the Himalayas all around its north, northeast, and east. Geomorphic studies conclude that the Brahmaputra, the lifeline of Assam, is an antecedent river, older than the Himalayas. The river with steep gorges and rapids in Arunachal Pradesh becomes a braided river after entering Assam (at times 16 km wide) and, with tributaries led to development of a flood plain (Brahmaputra Valley: 80–100 km wide, 1000 km long). The hills of Karbi Anglong, North Cachar, and those in and around Guwahati (also Khasi-GaroHills) are now eroded and dissected. They are initially part of the South Indian Plateau system. In the south, the Barak, originating in the Barail Range (Assam-Nagaland border), flows through the Cachardistrict with a 40–50 km wide valley and enters Bangladesh with the name Surma. The State is one of the richest biodiversity zone in the world. Total Forest cover is 35.48% and consists of tropical rainforests, deciduous forests, riverine grasslands, bamboo, orchards, and numerous wetland ecosystems. The State has five national parks, 13 wildlife sanctuaries, and two bird sanctuaries (Official website, Government of Assam).

2.5. Geology

Assam has a diversified geological spectrum. It is located near the hairpin bend of the Himalayas. Hence, the extreme geostatic pressures exerted on the landmass during the creation of the Himalayas have resulted in Assam having large areas of sedimentary deposits. This led to the development of oil reserves in places like Digboi, Bongaigaon etc. Cachar district of Assam is a huge storehouse of limestone. Limestone, which is basically Calcium Carbonate, is primarily a sedimentary rock which is used in a plethora of purposes namely construction, interior decoration etc. Karbi Anglong District and North Cachar hills have substantial reserves of coal. Of the four types of coal namely Peat, Lignite, Bituminous and Anthracite, the third type is readily available here. Karbi Anglong is also rich in Kaolin (China Clay) deposits. Another district, Morigaon, contains extensive reserves of granite. The famous Dhubri district has an approximate reserve of more than ten million tons of Iron Ore. Of the four kinds of Iron ore, Haematite, Magnetite, Limonite and Siderite, the region is predominant in Haematite deposits. Not to be outdone, Nagaon district has got very high reserves of Glass Sand. The geology of Assam depicts a rich repository of minerals with its diversified geographical structure. (Information collected from Geology of Assam – http://www.mapsofindia.com/assam/geography/geology-of-assam.html).

2.6. Climate

Assam experiences the predominant influence of the southwest tropical monsoon, which is normally active from April to October with occasional winter showers. The approach of the monsoon is usually marked by strong winds, overcast skies accompanied by occasional thunder showers, hailstorms and at times by cyclones between April and May. Thunderstorms known as Bordoicila are frequent during the afternoons while heavy downpour starts from June. The annual average rainfall of the state varies between 1600mm and 4300mm from place to place. The average rainfall for the state as a whole is about 2900mm with maximum precipitation during June and July. The average temperature in the state varies from 4°C to 19°C during the winter and 26°C to 37°C during the summer, accompanied by high humidity. The unique geo-climatic, geographic and physiographic position of the Assam State endows it with abundant forest, water, bio-diversity and natural resources. The mighty Brahmaputra and Barak rivers are the perennial sources of water and support the unique ecology and environment of the state. Geophysically, the state is situated in seismic sensitive zone; the river systems, the mountain terrains and excess rainfall in the region make the state more vulnerable to frequent earthquakes, landslides, floods, forest fire and other natural hazards. With global warming and climate change, the frequency and magnitude of these hazard events are going to be increased impacting further the lives, livelihood and development of the state in the coming decades. In the following chapter, the hazard, risks and vulnerability profile of the state are dealt with in detail.

2.7. Major River Systems

All the rivers in Assam are liable to floods, mainly because they receive heavy rainfall within a short time. These rivers are in their early stage of maturity and are very active agents of erosion. The river waters collect a tremendous amount of silt and other debris and raise the level of the river beds. Therefore, it becomes impossible for the main channel to cope with the vast volume of water received during the rains . The Brahmaputra and the Barak are the two major river systems of the State. The Brahmaputra River originates at an elevation of about 5,000 m above mean sea level (MSL) in Tibet. The Brahmaputra River, known as Tsang Po in Tibet, after a long eastward course of 1,600 km abruptly veers towards south around Namcha Barwa peak (7,710 m) in Eastern Himalaya. This southward course of the river flowing through Arunachal Pradesh is known as Siang River. It passes through tortuous course across the mountains of Arunachal Pradesh and then emerges on to the plains of Assam, where it is met by the Dihang in the downstream, which is known as the largest tributary of the Brahmaputra, further fed by tributaries like Dibong, Sessiri, Lohit and Noa-Dihing around Saikhowaghat. The river known as Brahmaputra in Assam initially flows south-westward and thereafter towards west in the Brahmaputra Valley. Further downstream, the river swings towards south and passes on to the plains of Bangladesh. The Brahmaputra River between Namcha Barwa and the confluence with Dihang descend by about 2,200m and its water resources have been estimated to be the third biggest in the world coming after Congo and Amazon basins. Along the northern bank, the Brahmaputra River is joined by the tributaries like Subansiri, Ranga Nadi, Dikrong, Gabharu, North Dhansiri, Pagladiya, Manas, Aie, Beki, Champamati, Gangadhar, and Raidak. All these tributaries more or less flow in straight courses up to the junction of the main river. On the south bank, tributaries like Burhi-Dihing, Disang, Dikhau, and South Dhansiri originate from Naga Patkai Hills. The Kopili River originates from North Cachar Hills, while the Digaru, Bharalu, Kulsi, Singra, Dudnai and Krisnai originate from Meghalaya Plateau. Some of the rivers and tributaries originating from the south flow for quite a distance almost parallel to the Brahmaputra River before joining the main river. The often-changing meandering course of the Brahmaputra and its tributaries are not only due to lateral erosion because of the low gradient of the rivers but also due to periodic, local and sudden changes in the basement levels due to the tectonic activity (Geology and Mineral Resources of Assam, GSI, 2009). Figure-2.1 depicts the river network of Assam and Figure-2.2 display the terrain conditions of Assam. Drainage area of Brahmaputra and Barak rivers are presented in Table 2.4 and 2.5 respectively.

Table 2.4: Drainage area of Brahmaputra River in India

State	Drainage area (sq.km)
Arunachal Pradesh	81,424
Assam	70,634
West Bengal	12,585
Meghalaya	11,667
Nagaland	10,803
Sikkim	7,300
Total	**194,413**

Table 2.5: Drainage area of Barak River in India

State	Drainage area (sq.km)
Meghalaya	10650
Manipur	9567
Mizoram	8866
Assam	7224
Tripura	4688
Nagaland	728
Total	**41723**

(Source: Book by Vijay P Singh – "Brahmaputra Basin Water Resources", 2004)

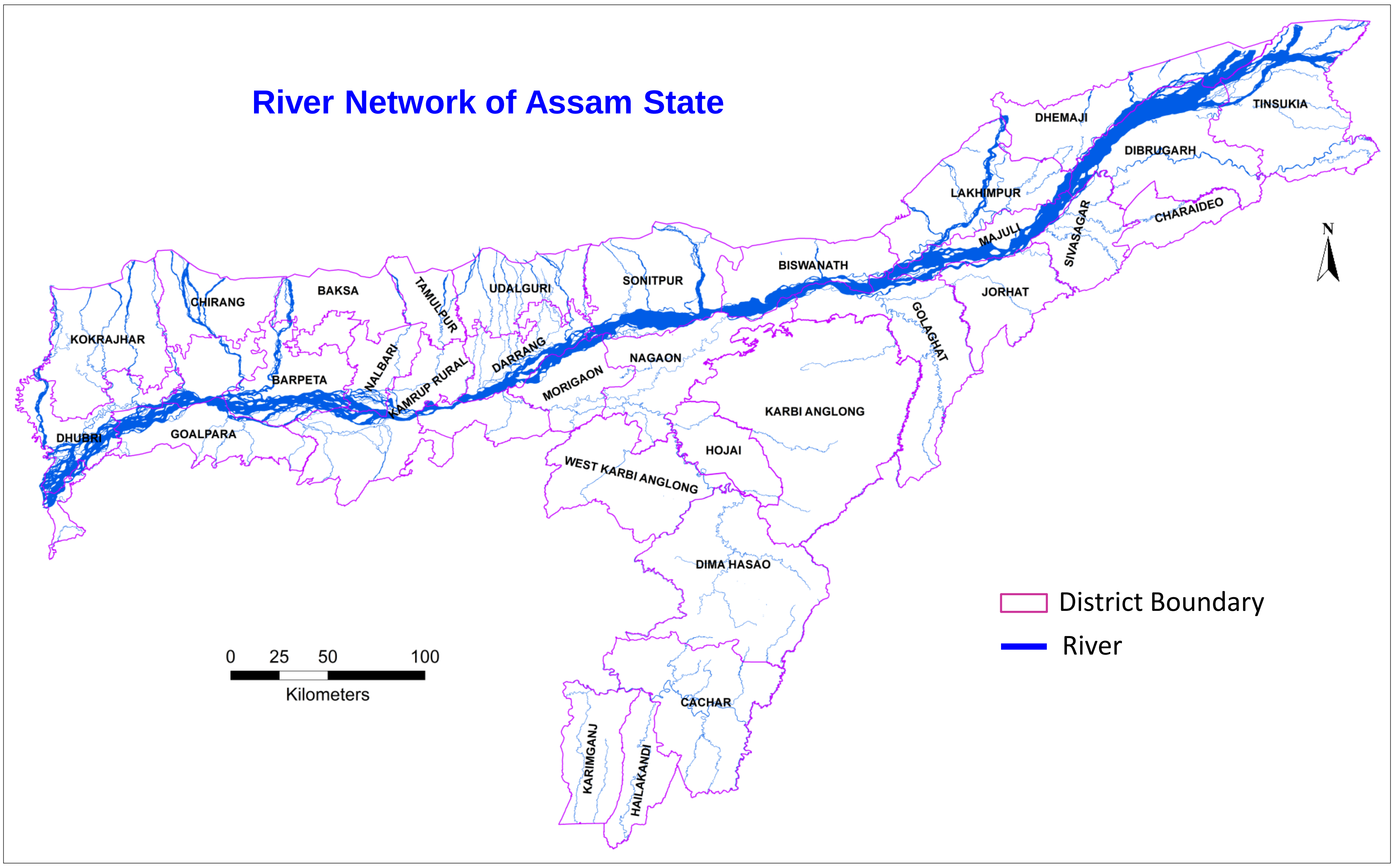

River Network of Assam State
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
MAJULI
SIVASAGAR
BISWANATH
JORHAT
SONITPUR
UDALGURI
BAKSA
TAMULPUR
CHIRANG
KOKRAJHAR
GOLAGHAT
DARRANG
NAGAON
NALBARI
KAMRUP RURAL
MORIGAON
BARPETA
KARBI ANGLONG
DHUBRI
GOALPARA
HOJAI
WEST KARBI ANGLONG
DIMA HASAO
CACHAR
KARIMGANJ
HAILAKANDI
N
District Boundary
River
0 25 50 100
Kilometers

Figure 2.1: River network of Assam

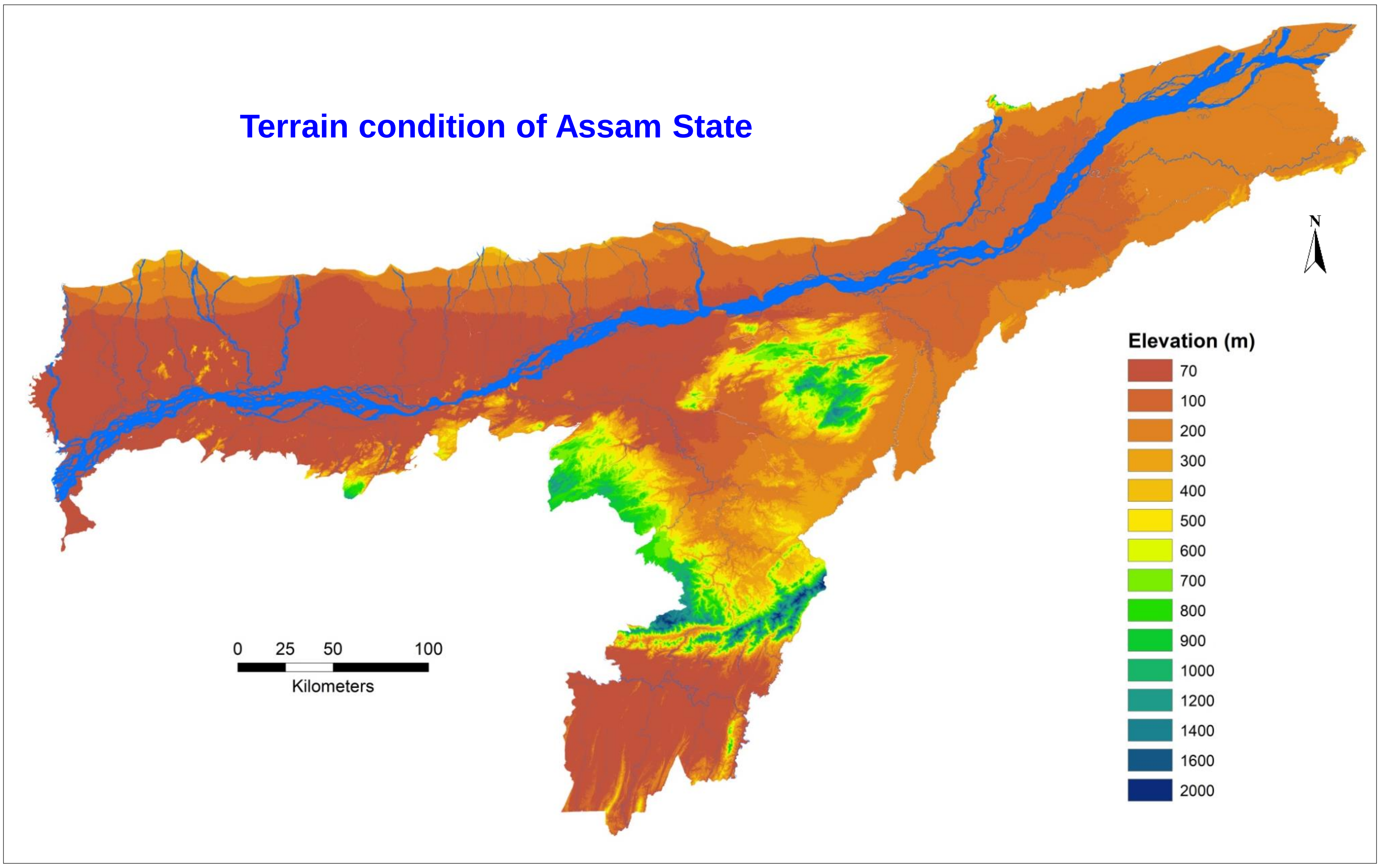

Terrain condition of Assam State
N
Elevation (m)
70
100
200
300
400
500
600
700
800
900
1000
1200
1400
1600
2000
0 25 50 100
Kilometers

Figure 2.2: Terrain condition of Assam

2.8. Temperature Variations

In general, the average temperature in Assam varies from 13.33 to 28.11.Table 2.6 shows variability in temperature, rain fall and humidity in Brahmaputra valley.

Table 2.6: Variability in temperature, rainfall and humidity in Brahmaputra valley

SEASONS		**WINTER**	**PRE-MONSOON**			**RAINY MONSOON**					**RETREATING MONSOON**		**WINTER**	**Av. Annual**
Major Stations	**Climatic Variables**	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	
Dibrugarh	Temperatures in ^{0}C	13.33	16.00	19.83	22.22	24.83	26.28	26.67	27.00	26.28	24.33	19.83	14.22	285.35
	Rainfall in cm	3.78	6.20	16.51	24.10	30.71	49.96	53.64	45.11	35.18	15.21	3.35	1.60	
	Humidity in percentage	94	88	79	82	86	90	90	90	89	95	95	94	
Sivasagar	Temperatures in ^{0}C	13.17	15.67	19.39	22.22	25.11	27.17	27.56	27.59	26.83	24.28	19.17	14.11	249.16
	Rainfall in cm	3.07	5.13	11.18	25.70	30.63	38.42	45.69	41.58	30.05	13.13	3.10	1.47	
	Humidity in percentage	96	91	84	84	87	88	90	89	90	91	92	97	
Tezpur	Temperatures in ^{0}C	14.00	16.33	20.61	23.17	25.22	26.94	27.33	27.50	27.44	24.72	20.22	15.17	184.41
	Rainfall in cm	1.47	2.74	4.88	15.27	27.05	30.84	34.77	33.07	20.98	10.41	2.29	0.64	
	Humidity in percentage	91	84	74	77	84	87	89	90	89	85	84	91	
Guwahati	Temperatures in ^{0}C	14.17	16.44	20.83	24.00	25.83	27.44	28.11	28.11	27.56	25.06	20.00	15.28	161.19
	Rainfall in cm	0.97	2.97	5.05	14.50	23.60	31.24	31.19	26.06	16.74	7.06	1.40	0.41	
	Humidity in percentage	91	82	73	76	82	85	86	86	85	86	89	92	
Dhubri	Temperatures in ^{0}C	14.56	16.67	21.39	24.39	25.44	26.50	27.50	27.56	27.00	25.11	20.79	16.27	284.68
	Rainfall in cm	0.97	1.88	4.22	13.77	40.11	61.23	43.66	33.76	35.61	12.45	1.02	0.18	
	Humidity in percentage	87	79	69	74	85	82	88	88	88	85	82	86	

2.9. Economy

The economy of Assam continues to be predominantly agrarian. The contribution of the agriculture sector to the State Domestic Product was more than 19.34 percent during 2016-17. The major agricultural products of the state include rice, tea, jute, mustard, pulses, sugarcane, potatoes, oranges, pineapples, coconut, areca nut, black pepper, citrus fruits, banana, papaya, turmeric, spices, flowers, medicinal and aromatic plants, along with many types of vegetables. These contribute significantly towards the food and nutritional security of the state. There are about 2.86 lakh hectares of water area in the state, consisting of rivers, beels (lake-like wetlands with static water), derelict water bodies, and ponds and tanks. There has been a positive trend in fish productivity in recent years. During 2016-17, fish production reached 3.07 lakh metric tons, up from 2.06 lakh metric tons in 2008-09.

The Industrial scenario of the State is mainly confined within the growth of employment oriented small-scale sector, which comprises of manufacturing and processing industries. The contribution of manufacturing sector to gross state domestic product is quite significant (estimated at around 9.32% in recent years). There are 20 Industrial Estates, 8 Mini Industrial Estates, 20 Industrial Areas and 18 Growth Centres in the State where 800 Industrial units are functioning.

Assam is traditionally rich in horticultural production due to its diverse and unique agro-climatic condition, conducive for growing a range of horticultural crops like fruits, vegetables, flowers, spices, nuts, medicinal and aromatic plants. Major horticultural crops of Assam include banana, mango, lemon, orange, litchi, pineapple, papaya, guava, jack-fruit, chilli, turmeric, ginger, black pepper, coriander, areca nut, coconut etc.

Tea Plantations: Assam is the biggest producer of quality tea in India, contributing about 55 per cent to country's total tea production. Tea industry has contributed substantially to the economy of the state. About 17 percent of the workers of Assam are engaged in the tea industry. Tea plants used to grow naturally in the Upper Brahmaputra Valley. Presently it grows both in the Brahmaputra and Barak plains. Tinsukia, Dibrugarh, Sibsagar, Jorhat, Golaghat, Nagaon and Sonitpur districts are rich in tea gardens.

Assam is well known for its sericulture industry and bulk of the country's Eri and Muga silk are produced in Assam. Rearing of Eri, Muga and Mulberry silk worm are playing an important role in the livelihoods of a large section of rural population of the State. It is practiced in more than 9000 villages and provides employment to around 1.91 lakh families.

Bamboo has played an important part in the lives of the people of Assam. It has tremendous economic value besides being an integral part of the social and cultural traditions of the state. It grows in natural forests, and is cultivated in homesteads, groves and on private plantations. It is utilised for housing, fencing, agricultural implements, handicrafts, fuel and food. More than 42 naturally growing species of bamboo under 15 genera are reported from Assam.

3. Floods in Assam

Assam comprises a large network of rivers and tributaries originating from the upper catchments of the state with a high gradient, which joins the Brahmaputra and Barak rivers to form a highly dynamic and complex river system. High rainfall ranging from 1750 mm in the plains to about 6400 mm in the hills in the state and upper catchment, which includes Arunachal Pradesh, Meghalaya, Nagaland, Mizoram, Manipur, and neighbouring country Bhutan, causes severe floods in Assam. Multiple factors, such as excessive sediment load, large and variable flow, easily erodible bank materials, and aggradations of the channel, have been the possible underlying factors. Further, deforestation and human intervention in upstream and downstream areas of surrounding Hill States and Assam respectively have caused excessive siltation and runoff rates, resulting in abnormal rise in the surfaces of major rivers.

Human activities like deforestation, accelerated rate of change in land use, unplanned settlements, filling up low-lying areas for the construction of buildings, urban development, and temporary flood control measures are some changes that contribute to the overall vulnerability of the state to floods. The flood-prone area of the state is 31,500 sq km as assessed by the Rashtriya Barh Ayog, which is about 39.58 % of the total land area of Assam. This is about 9.4% of the total flood-prone area of the whole country.

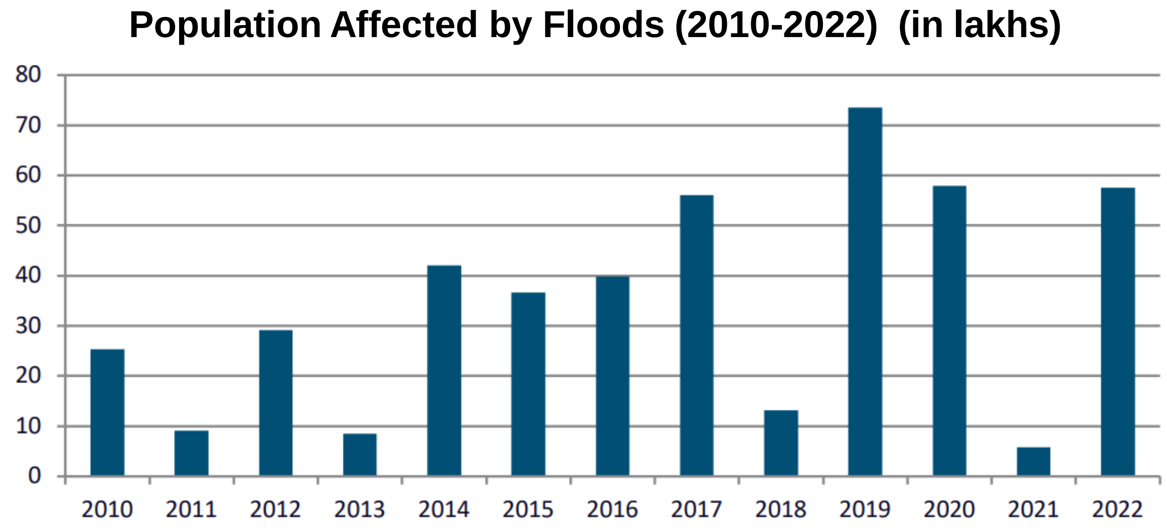
The population affected by floods from 2010 to 2020 is provided in Figure 3.1, which shows that the number of affected people ranged from 7 to 70 lakh in different years. In 2017, 2019 and 2022, the affected population is more than 40 lakh annually. The number of districts affected and circles indicated by the flood disaster are also provided in Figure 3.2.

3.1. Dam induced Flooding

Assam also witnesses flash floods caused by the release of water from dams upstream in Bhutan and neighbouring States in the northeast. Release of water from Doyang(Nagaland), Ranganadi(Arunachal Pradesh), and dams in Bhutan causes large-scale inundation in Assam. The Ranganadi dam has been the main cause of flash flooding in and around Lakhimpur district, adversely affecting the environment and socio-economic conditions of its people. In July 2017, water was released from the Ranganadi dam without notice, catching the districts' administrations and 300,000 people off-guard. Flood water damaged drainage channels under National Highway 15 between Lakhimpur and Dhemaji and washed away a 50-metre embankment stretch at Bogalijan in Lakhimpur. Dam-induced flooding is caused mainly because of human error. Timely communication by dam officials, early warning, and emergency evacuation, could save precious lives, and property, and prevent the loss of lives and assets of people living downstream.

3.2. Flood Damage and Losses:

The State of Assam faces regular floods yearly, causing loss of lives, property, infrastructure, and livelihoods. Figure 3.1, Figure 3.2, and Table 3.1 below the affected population of Assam have been presented, highlighting the gravity of the flood hazard in the state over the years. Similarly, Table 3.2 below presents the damages caused by floods from 2012 to 2022.



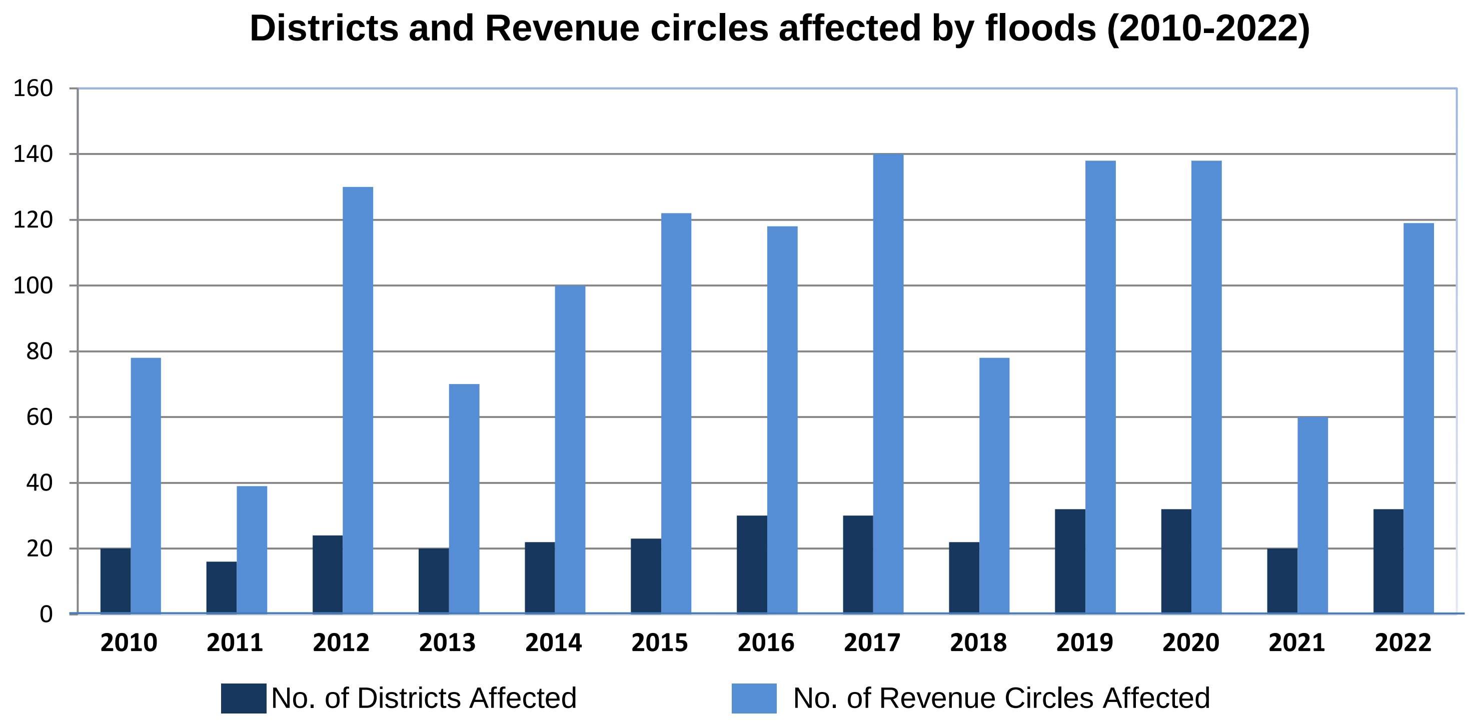
Source: Flood Memorandum, Assam, 2022

Figure 3.1: Population Affected by Floods (2010-2022)

Table 3.1: Flood Hazard Zonation Statistics in Assam (1998-2015)

Hazard Severity	**Flood Hazard Area (ha)**	**% Flood Hazard**	**% Flood Hazard**
		Flood Hazard (w.r.t. State Geographic Area)	**(w.r.t. Total Flood Hazard Area)**
Very High	48,490	0.62	2.16
High	1,06,659	1.36	4.73
Moderate	2,82,783	3.61	12.54
Low	5,56,080	7.09	24.66
Very low	12,60,562	16.07	55.91
Total	**22,54,574**	**28.75**	**100**

(Source: Flood Hazard Atlas of Assam, NRSC / ISRO 2016)



(Source: Flood Memorandum, Assam, 2022)

Figure 3.2: Districts and Revenue circles affected by floods (2010-2022)

Table 3.2 : Damage caused by Flood in Assam during 2012 to 2023

Year	Crop Area Affected (lakh hectares)	Population Affected (in Lakh)	Human Lives lost	Cattle Lost	Total Damages Value (in Crore)
2012	3.28	29.14	144	11408	3591.81
2013	0.71	8.48	NA	NA	NA
2014	3.67	42.03	90	28	2534.88
2015	3.38	36.67	66	212	1523.79
2016	2.35	39.81	64	5580	10,339.66
2017	3.98	56.02	160	449	4358.81
2018	0.31	13.22	53	556	2491.59
2019	2.15	73.05	101	250	3237.75
2020	1.88	57.89	150	702	2642.99
2021	0.65	5.74	3	13	NA
2022	1.08	57.5	179	2700	10,000
2023	0.21	13.47	18	103	117.68

(Source: Flood Memorandum, Revenue & Disaster Management Department, 2023)

Flood Hazard Zonation mapping was created by NRSC in 2015, considering that the analysis satellite derives flood inundation maps from multi-sensor satellite datasets from 1998-2015 (17 Years). It was estimated that an area of 22.54 lakh ha is the total cumulative flood-affected area in Assam State and is 28.75% of the total geographical area of Assam. The total flood-affected area is categorized into five hazard categories, namely, very high hazard (48,490 ha), high (1,06,659 ha), moderate (2,82,783 ha), low (5,56,080 ha), and very low (12,60,562 ha).

3.3. Management of Floods

One way to minimize the impact of floods is to implement effective flood management measures. These measures can be broadly divided into two categories. The first category includes structural measures involving physical infrastructure such as dams, levees, and reservoirs. The second category encompasses non-structural measures, such as land-use planning, zoning regulations, early warning systems, community preparedness, and public education campaigns. Implementing effective flood management measures is crucial for minimizing the impact of floods. These measures can be broadly divided into two types: structural measures, which involve physical infrastructure, and non-structural measures, which include policies, planning, and awareness-raising initiatives.

Structural Measures: In this approach, physical structures are envisaged to prevent the flood waters from reaching potential damage regions. The main structural measures undertaken so far in India are as follows.

1. Embankments, Floodwalls, Flood levees
2. Dams and Reservoirs
3. Natural Detention Basin
4. Channel Improvement
5. Drainage Improvement
6. Diversion of flood water
7. Catchment area treatment/ afforestation
8. Anti-erosion works

In India, systematic planning for flood management commenced with the Five Year Plans, particularly with the launching of the National Program of Flood Management in 1954. During the last 48 years, different methods of flood protection, structural and non-structural, have been adopted in various states depending upon the nature of the problem and local conditions.

Flood protection is one of the practical methods of damage reduction. Although it is impossible to be completely protected from flood disasters, mitigation plans can reduce major damages. Flood risk mitigation strategies can be either long-term or short-term. Structural river training plans are traditionally known methods of flood mitigation, and this method has been used along with the general flood management approach in most floodplain areas. Flood damage determination is not only an essential factor for risk management, but it is also a significant parameter in the evaluation of mitigation plans according to the type and size of measures.

The flood control activities in Assam started mainly after the announcement of the National Water Policy, wherein the works related to the general development of the rural sector and the protection of major townships in both the Brahmaputra and Barak valley were taken up. To mitigate the flood problem in Assam, various schemes like the construction of embankments and flood walls, river training, bank protection works, anti-erosion and town protection works, etc., have been taken up in different parts of the state by the Water Resources Department of Assam. These flood management schemes have been implemented from the beginning of the 2nd Five Year Plan and are continuing till now. Table 3.3 describes the information on structural flood management measures in Assam.

Table 3.3: Structural flood management measures undertaken during various five year plans

Length of Embankment	**4473.82 Km.**
Raising & Strengthening of Embankment	**655.502 Km**
Anti-Erosion and town protection works	**911 Nos.**
Drainage schemes	**874.966 Km**
Sluices (Major)	**94 Nos.**
Sluices (Minor)	**545 Nos.**

Non-Structural Measures: Non-structural measures strive to keep the people away from floodwater. It contemplates the use of floodplains judiciously. This technique allows the use of floodplains by reducing the disaster dimension while retaining its beneficial needs. The following are the main non-structural measures:

1. Flood forecasting based on real-time data by installation of modern/sophisticated instruments
2. Flood Plain Management
3. Flood Proofing
4. Disaster preparedness and response planning
5. Flood insurance

Towards non-structural flood management measures, the Central Water Commission (CWC) has established a flood forecasting system comprising 175 stations on all major rivers. It is implementing the scheme for its modernization and expansion.

Flood Hazard Zonation (FHZ) is another most important non-structural measures, which facilitates appropriate regulation, and development of floodplains thereby reducing the flood impact. The recurrent flood events at frequent intervals demand the need for identification of flood hazard prone areas for prioritizing appropriate flood control measures. In this context, satellite remote sensing plays an important role in delineating such flood hazard zones.

3.4. Erosion

The erosion history of Assam indicates that between 1912 and 1996, around 868 sq. km. of land was lost to bank erosion, with mean rate of 10.3 sq. km/ year was lost. Further, studies indicated that significant erosion occurred in Assam due to the Brahmaputra River during the period 1914 to 1975. The bank line of the Brahmaputra is extremely unstable and mainly consists of fine sand and silt. Large-scale slumping of river banks occurs when the level falls after a flood. Further, the Brahmaputra's braided nature adds unpredictability to the erosion problem, making it more serious. The average bank-line shift of the north bank towards the north is estimated to be 227.5 m/year on average, 331.6 m/year from the north bank towards the south, 137.2 m/year from the south bank towards the south, and 225 m/year from the south bank towards the north. Bank floods due to breaches in the embankment render the fertile cultivable land unsuitable for crop production due to the deposition of coarse sand on the surface to a variable depth. The erosion statistics of Assam are presented in Table 3.4.

Table 3.4: Soil Erosion Statistics of Assam (2022)

1	Total cultivable area in Assam	34,60,082 ha
2	Area affected by Soil Erosion	1,93,000 ha
3	Area under Wasteland & Degraded Land	2,71,556 ha
4	Area affected by shifting cultivation	1,70,000 ha
5	Average area being eroded due to flood and soil erosion problems	6,500 ha
6	Average area affected by flood annually	4,50,000 ha
7	Average annual rainfall in Assam	2,4000 mm
8	Total Annual Silt Load of Brahmaputra(1990)	
	at Bhurbandha	3,59,241 cu.m
	at Pandu	4,94,357 cu.m
9	Annual Soil Erosion rate(1990)	
	Jia Bharali River	4,721 Tonnes per sq.km
	Puthimari River	2,887 Tonnes per sq.km

(Source: Assam Science Technology and Environment Council http://www.envisassam.nic.in/soilerosion.asp last accessed on 13th Jan, 2012)

3.5. Flood Control Measures in Assam

Based on the 1954 Policy Statement and the recommendations of Task Force-2004 on Flood Management/Erosion control, the State Government has undertaken short-term measures as shown in Table 3.5 (a). Table 3.5 (b) shows the division-wise length of embankments

Table-3.5(a): Short-term Flood Control Measures Undertaken by the State of Assam.

S No	Brahmaputra Valley		Barak Valley		Total
1	**Embankments**		**Embankments**		**4458 km**
	Brahmaputra	1016 km	Barak	251 km	
	Tributaries	2681 km	Tributaries	510 km	
2	**Anti-erosion/town protection schemes**	531 nos.	**Anti-erosion/town protection schemes**	156 nos.	**687 nos.**
3	**Drainage Channel**	599 km	**Drainage Channel**	251 km	**850 km**
4	**Sluices**	56 nos.	**Sluices**	29 nos.	**85 nos.**
5	**Raised Platform**	3 nos.	**Raised Platform**	-	**3 nos.**

(Source: Water Resources Department, Assam)

Table-3.5 (b) Division-wise length of embankments

Sl.No.	Name of Division	Division Wise Length (Km.)	Name of District	District Wise Length (Km.)
1	Dibrugarh	364.358	Dibrugarh	290.508
2	Sivasagar	368.995	Tinsukia	73.85
3	Jorhat	238.54	Sivasagar	368.995
4	Majuli	189.214	Jorhat	347.254
5	UAID, Jorhat	55.35	Golaghat	133.85
6	Dhemaji	199.051	Dhemaji	199.051
7	Dhakuakhana	104.155	Lakhimpur	432.184
8	N. Lakhimpur	328.029	Sonitpur	220.328
9	Tezpur	220.328	Karbi Anglong	34.162
10	Nowgong	232.047	Nowgong	232.047
11	Morigaon	173.328	Morigaon	173.328
12	Guwahati East	78.14	Kamrup (M)	38.765
13	Guwahati West	216.89	Kamrup (R)	274.865
14	PGP	18.60	Dorrang	183.138
15	Mangaldoi	183.138	Udalguri	16.00
16	Nalbari	229.51	Nalbari	229.51
17	Baksa	68.70	Barpeta	188.974
18	Barpeta	188.974	Baksa	52.70
19	Chirang	26.105	Chirang	26.105
20	Kokrajhar	26.611	Bongaigaon	25.54
21	Dhubri	67.13	Kokrajhar	26.611
22	Goalpara	58.10	Dhubri	41.59
23	Diphu	34.162	Goalpara	58.10
24	Karimganj	180.14	Cachar	474.349
25	Silchar	424.709	Karimganj	195.80
26	Cachar	44.23	Hailakandi	128.246
27	Hailakandi	149.316	N.C Hills	0.00
28	Haflong	0.00	Dima Hasao	0.00
	Total	**4465.85**	**Total**	**4465.85**

(Source: https://waterresources.assam.gov.in/portlets/flood-management)

These measures have afforded reasonable protection to flood-affected areas of 16.20 lakh ha out of 31.50 lakh ha of flood-prone areas of Assam.

Short-Term Structural Measures:

The State Government of Assam has suggested short-term measures like new embankments, gap closure, raising and strengthening existing embankments, anti-erosion works, drainage development, and raised platforms. As informed by the State Government, the total cost of such short-term works is around Rs.2022 crore, out of which the works identified as Priority-I are Rs.1195 crore and as Priority-II of Rs.826 crore.

Long-Term Structural Measures:

The State Government has suggested the early completion of surveys, investigations, and DPRs and expediting the eight significant dams (Pagladiya, Tipaimukh, Subansiri, Dehang, Kameng, Lohit, Debang) as under projects for ensuring flood moderation benefits to the State of Assam.

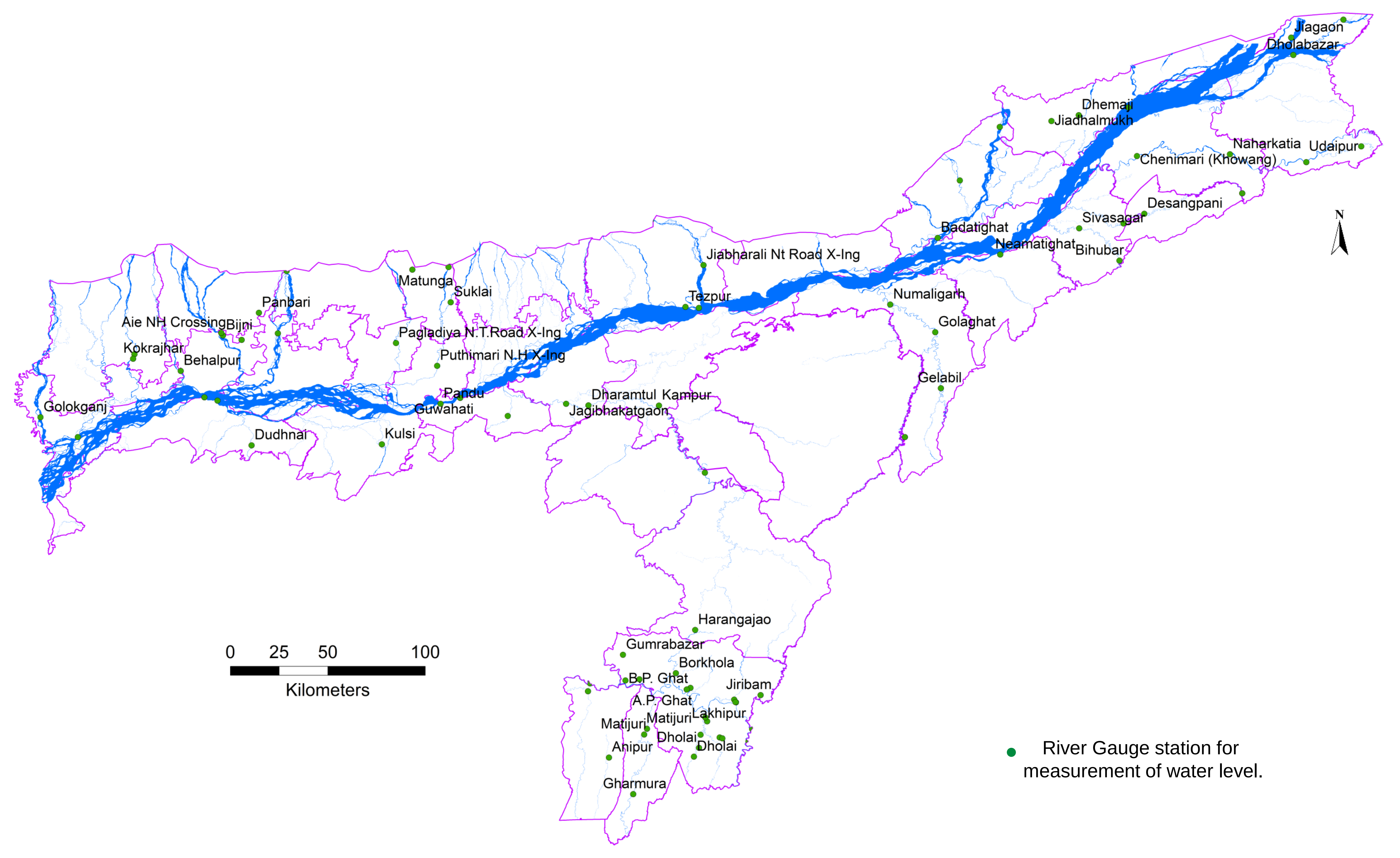

Jiagaon
Dholabazar
Dhemaji
Jiadhalmukh
Naharkatia
Udaipur
Chenimari (Khowang)
Desangpani
Sivasagar
Badatighat
Neamatighat
Bihubar
N
Jiabharali Nt Road X-Ing
Tezpur
Numaligarh
Golaghat
Gelabil
Matunga
Suklai
Panbari
Aie NH Crossing
Bijni
Kokrajhar
Behalpur
Pagladiya N.T.Road X-Ing
Puthimari N.H X-Ing
Pandu
Guwahati
Golokganj
Dudhnai
Kulsi
Dharamtul
Kampur
Jagibhakatgaon
Harangajao
Gumrabazar
Borkhola
B.P. Ghat
Jiribam
A.P. Ghat
Matijuri
Matijuri
Lakhipur
Dholai
Dholai
Ahipur
Gharmura
0
25
50
100
Kilometers
● River Gauge station for measurement of water level.

Figure- 3.3: Location map showing river gauge station maintained by Central Water Commission (CWC)

3.6.Satellite Remote Sensing for Flood Management

Satellite remote sensing technology has significantly advanced various aspects of flood disaster management, including preparedness, relief, and mitigation. From their unique vantage point, space systems have demonstrated their ability to deliver essential information and services for effective flood management. Earth Observation satellites offer comprehensive, synoptic, and multi-temporal coverage of vast areas in real-time and at regular intervals, making them invaluable for continuous flood monitoring. In situations with persistent cloud cover, microwave satellites, which possess all-weather capabilities, can effectively identify the extent of flood inundation. Table 4 lists the satellites and sensors employed for flood management in India. Over the past two decades, satellite remote sensing has been operationally implemented for flood disaster management in the country. Figures 3.4a and 3.4b present IRS satellite data from Assam, depicting pre-flood and during-flood conditions. In these images, blue indicates water, red signifies vegetation, and white denotes cloud cover. Figures 3.5a and 3.5b illustrate microwave satellite images captured during pre- and post-flood scenarios from January to March 2023 and June to July 2023. The satellite-derived Land Use/Land Cover map of Assam is utilized to analyze flood-affected areas about land use and is displayed in Figure 3.6. Additionally, Figure 3.7 depicts the agricultural crop area as land use, which is used in this analysis.

The potential use of remote sensing technology for flood disaster management can be as follows:

- Flood inundation mapping and monitoring
- Rapid and scientific based Damage Assessment
- Monitoring and mapping of flood control works and changes in the river course
- Identification of river bank erosion
- Identification of chronic flood prone areas
- Improvement in flood forecasting & warning models

Conventional flood hazard mapping techniques rely on historical flood data to delineate floodplains. This approach necessitates a comprehensive survey, including records of peak flows over the years, cross sections, slopes, and detailed contour maps. Additionally, information on soils, physiography, land use, vegetation, population density, infrastructure, and settlements, along with estimates of hydraulic roughness, is required to ascertain the extent of flooding for a given recurrence interval. However, some of this data can be time-consuming and challenging to obtain through ground measurements. Flood hazard zone (FHZ) mapping also requires flow information and a high-resolution Digital Elevation Model (DEM), which is not readily available for all floodplains. These constraints make traditional methods of preparing FHZ maps difficult. In this context, Earth Observation Satellites offer a solution by providing regular assessment of flooding extent during significant flood events, thereby aiding in identifying frequently inundated areas. If satellite datasets are available for flood-prone regions, they can be effectively utilized for flood hazard zone mapping.

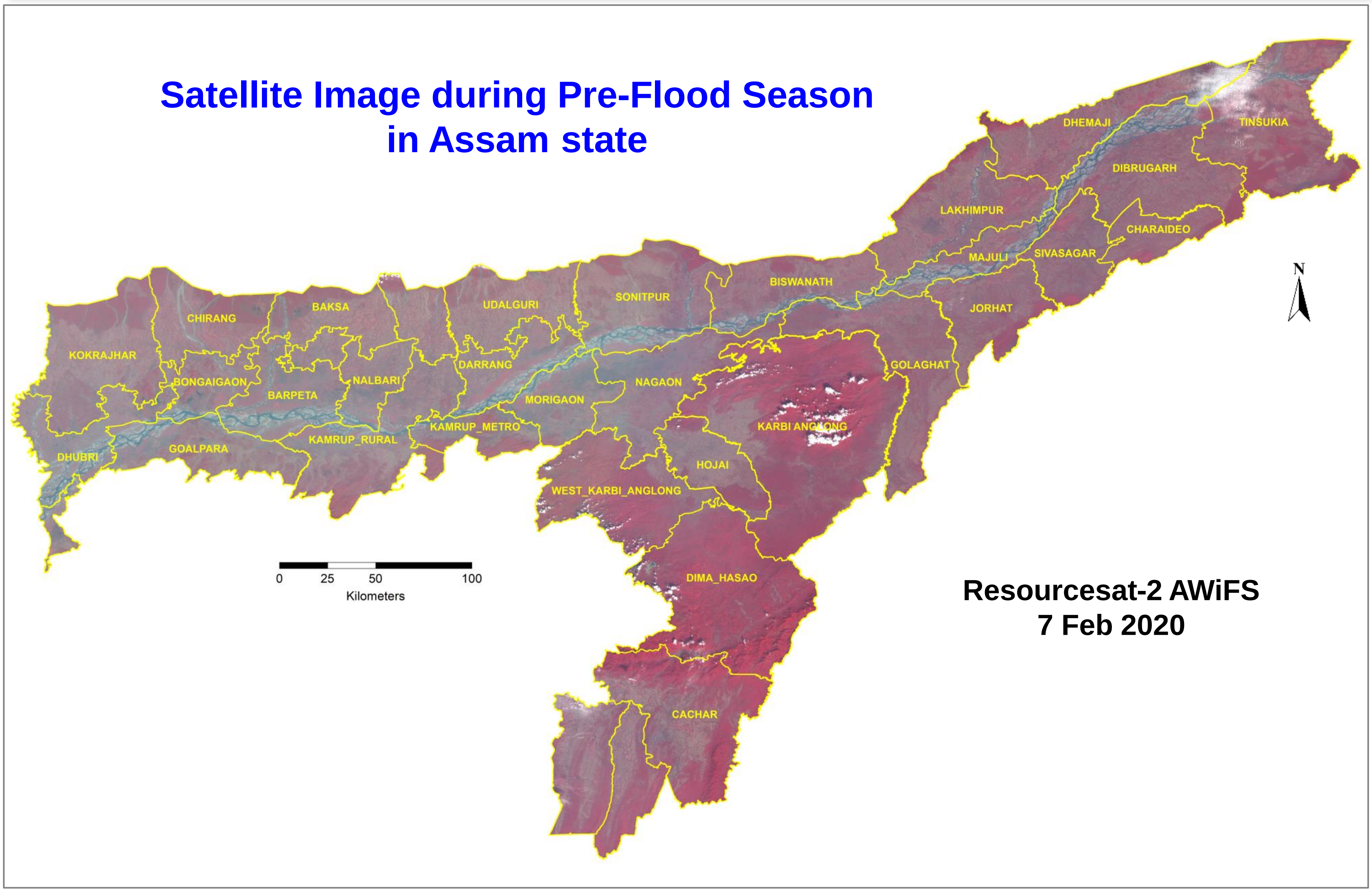

Satellite Image during Pre-Flood Season
in Assam state
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
MAJULI
SIVASAGAR
BISWANATH
JORHAT
SONITPUR
UDALGURI
BAKSA
CHIRANG
KOKRAJHAR
BONGAIGAON
NALBARI
DARRANG
BARPETA
MORIGAON
NAGAON
GOLAGHAT
KAMRUP_METRO
KAMRUP_RURAL
GOALPARA
DHUBRI
KARBI ANGLONG
HOJAI
WEST_KARBI_ANGLONG
DIMA_HASAO
CACHAR
N
0 25 50 100
Kilometers
Resourcesat-2 AWiFS
7 Feb 2020

Figure 3.4a : Optical Satellite Data During pre-flood condition (Feb 2020)

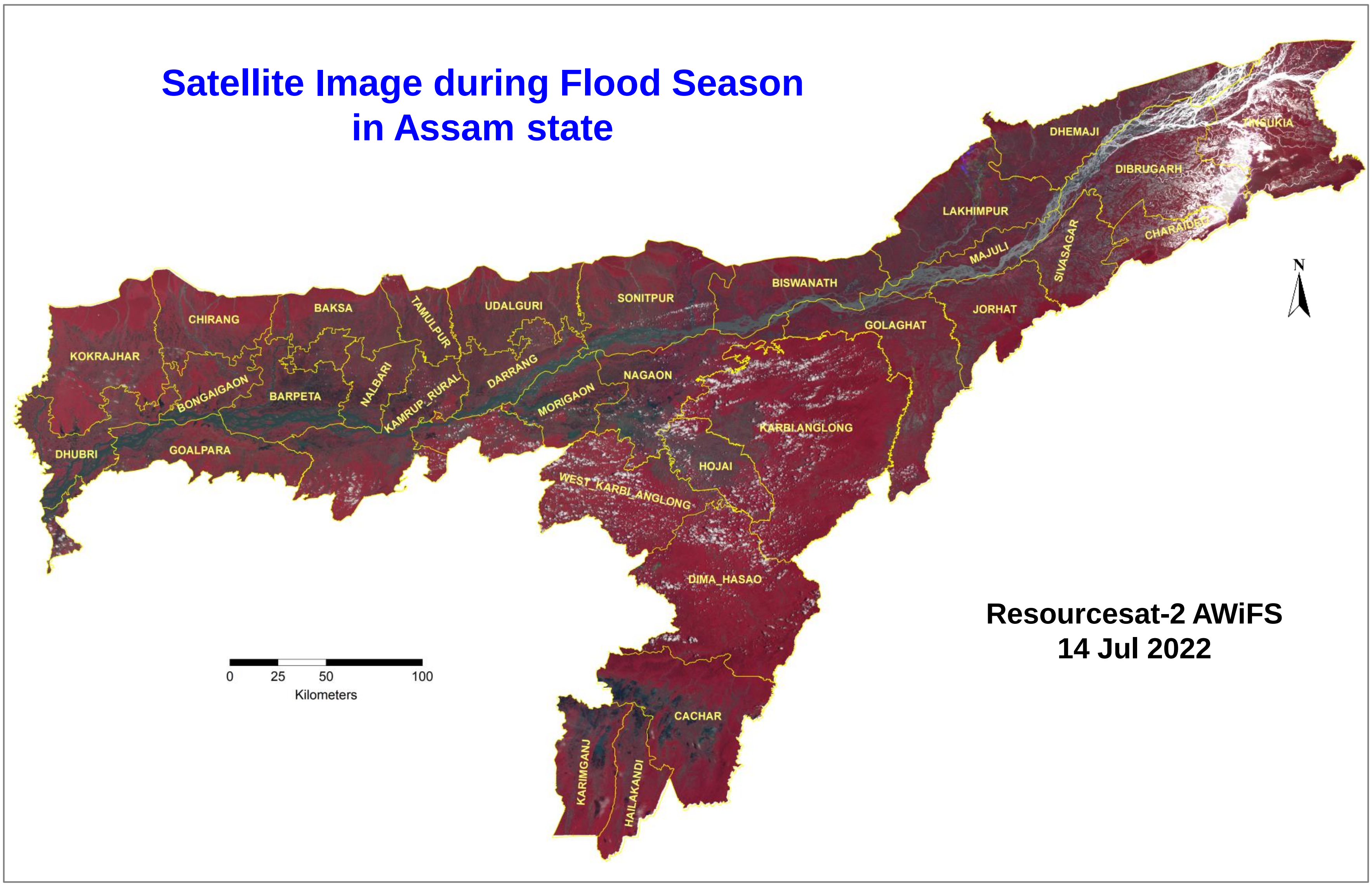

Satellite Image during Flood Season
in Assam state
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
MAJULI
SIVASAGAR
BISWANATH
JORHAT
SONITPUR
UDALGURI
BAKSA
TAMULPUR
CHIRANG
KOKRAJHAR
GOLAGHAT
BONGAIGAON
BARPETA
NALBARI
KAMRUP_RURAL
DARRANG
MORIGAON
NAGAON
DHUBRI
GOALPARA
KARBI ANGLONG
HOJAI
WEST_KARBI_ANGLONG
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
N
0 25 50 100
Kilometers
Resourcesat-2 AWiFS
14 Jul 2022

Figure 3.4b : Optical Satellite Data During flood condition (Jul 2022)

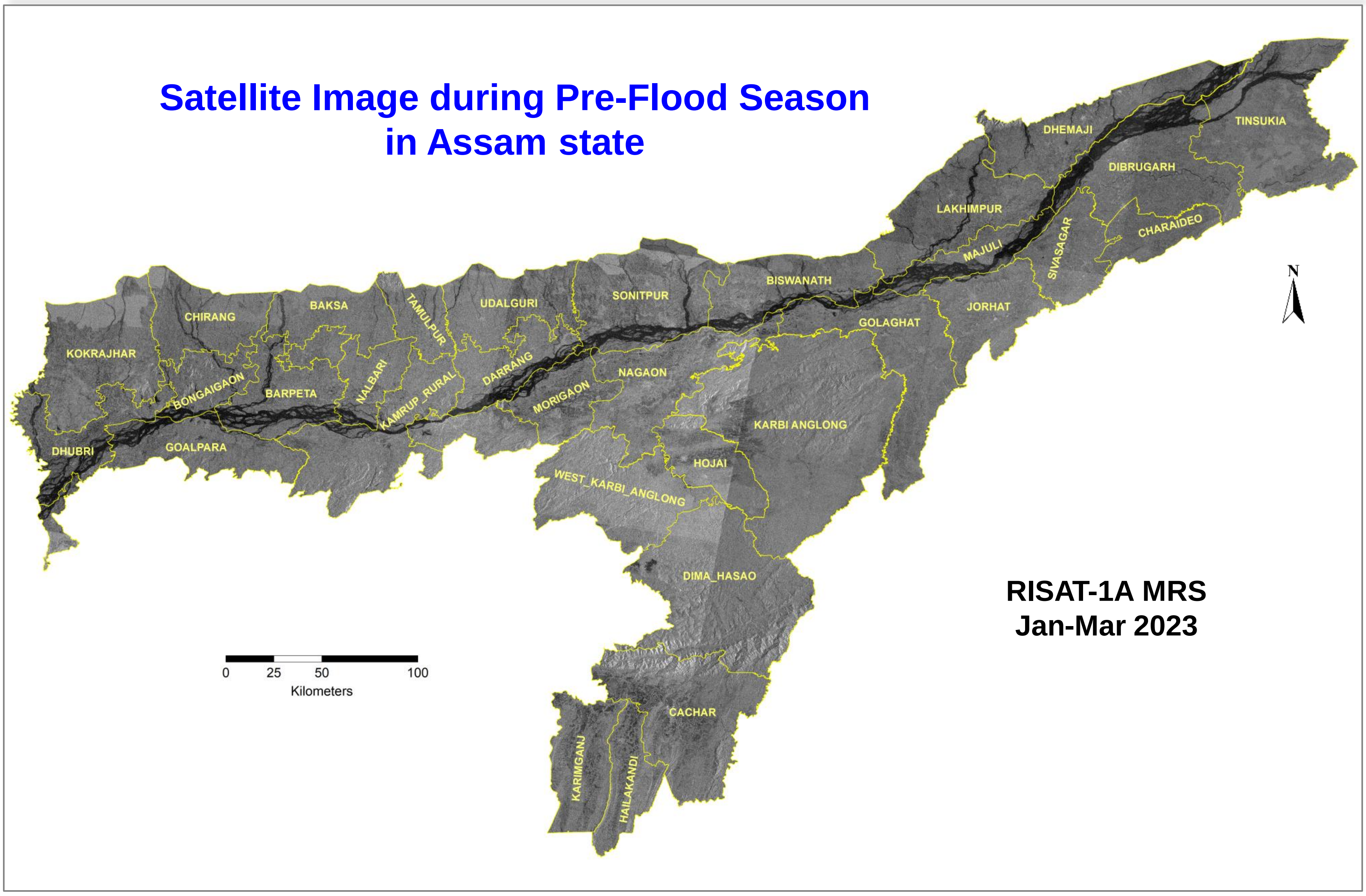

Satellite Image during Pre-Flood Season in Assam state
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
MAJULI
SIVASAGAR
BISWANATH
JORHAT
SONITPUR
UDALGURI
BAKSA
TAMULPUR
CHIRANG
GOLAGHAT
KOKRAJHAR
NALBARI
DARRANG
NAGAON
BONGAIGAON
BARPETA
KAMRUP_RURAL
MORIGAON
KARBI ANGLONG
DHUBRI
GOALPARA
HOJAI
WEST_KARBI_ANGLONG
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
N
RISAT-1A MRS
Jan-Mar 2023
0 25 50 100
Kilometers

Figure 3.5a : Microwave Satellite Data During pre-flood condition (Jan-Mar 2023)

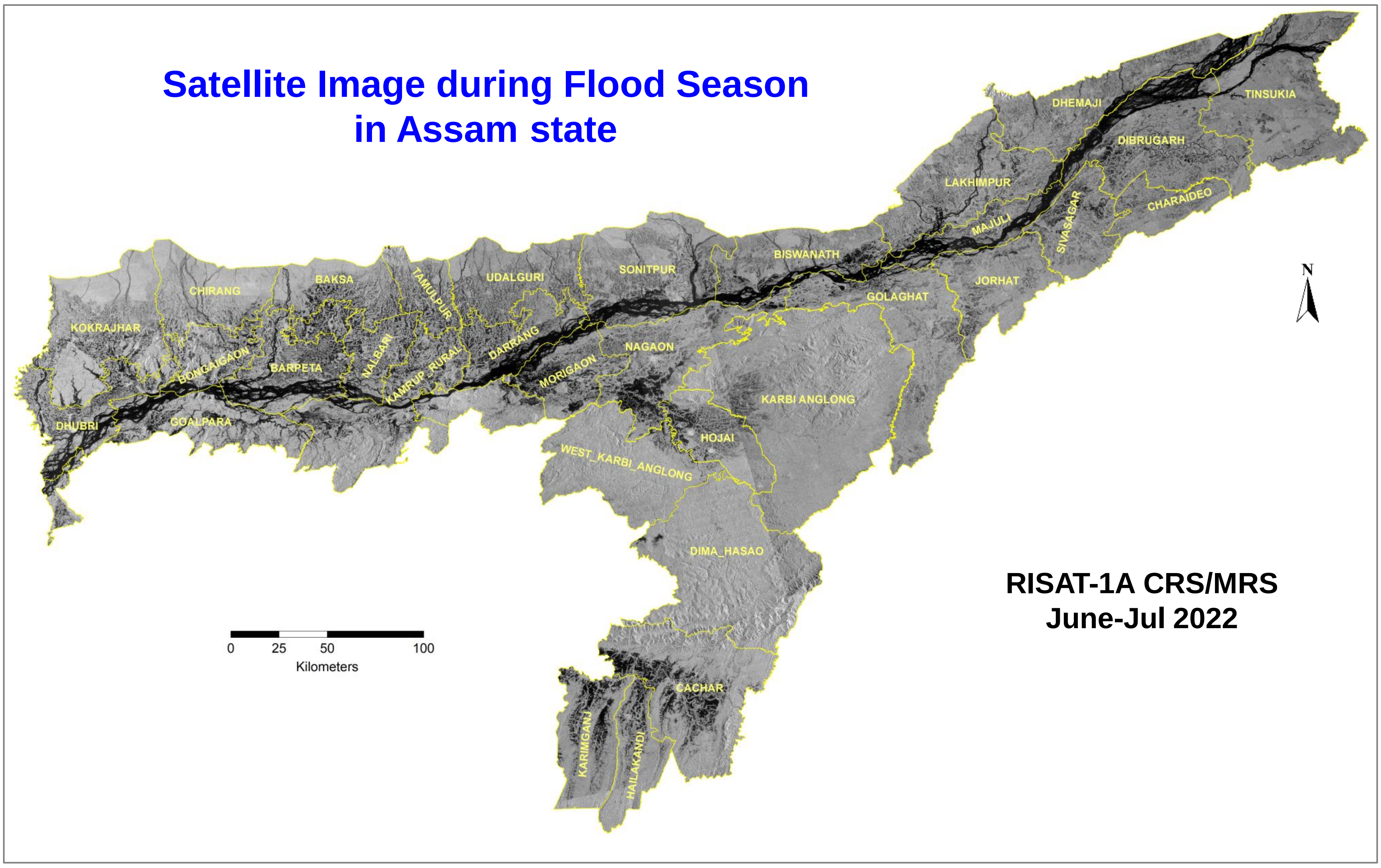
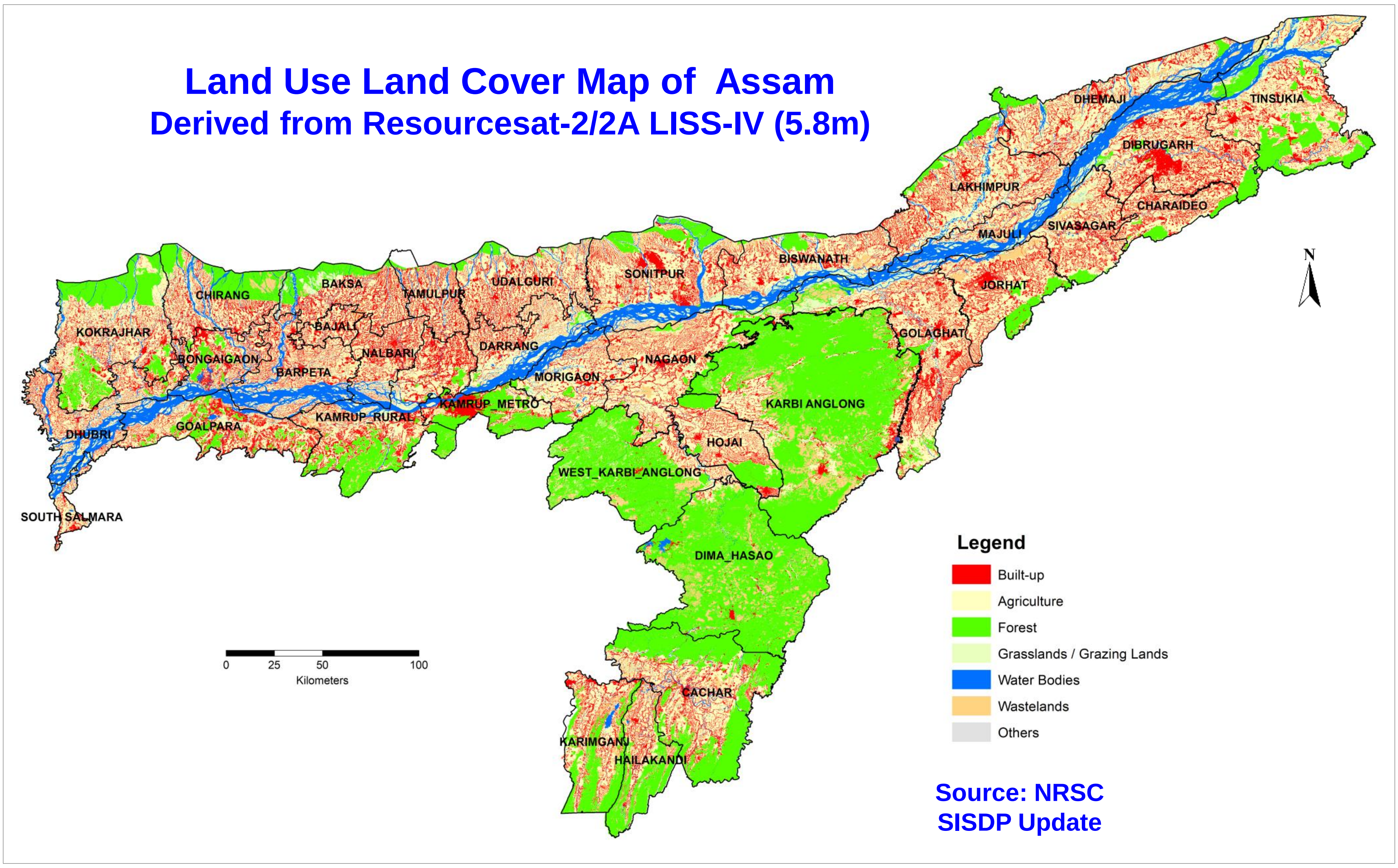

Satellite Image during Flood Season in Assam state
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
MAJULI
SIVASAGAR
BISWANATH
JORHAT
SONITPUR
UDALGURI
BAKSA
TAMULPUR
CHIRANG
GOLAGHAT
KOKRAJHAR
NALBARI
DARRANG
NAGAON
BONGAIGAON
BARPETA
KAMRUP_RURAL
MORIGAON
KARBI ANGLONG
DHUBRI
GOALPARA
HOJAI
WEST_KARBI_ANGLONG
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
N
RISAT-1A CRS/MRS
June-Jul 2022
0 25 50 100
Kilometers

Figure 3.5b : Microwave Satellite Data During flood condition (June-Jul 2022)

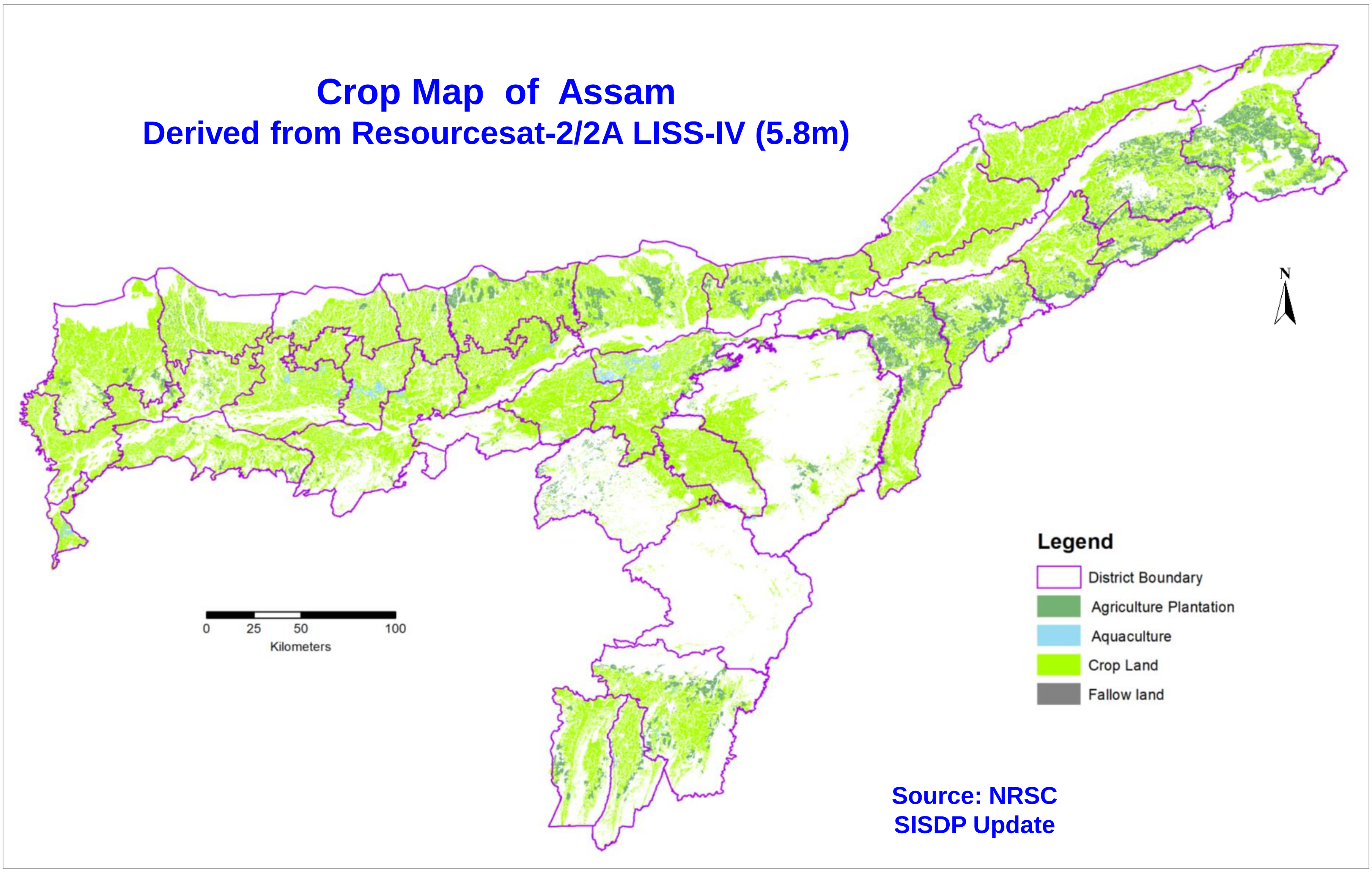


Land Use Land Cover Map of Assam
Derived from Resourcesat-2/2A LISS-IV (5.8m)

DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
SIVASAGAR
MAJULI
BISWANATH
SONITPUR
JORHAT
UDALGURI
BAKSA
TAMULPUR
CHIRANG
KOKRAJHAR
BAJALI
NALBARI
DARRANG
BONGAIGAON
BARPETA
MORIGAON
NAGAON
GOLAGHAT
KAMRUP_METRO
KAMRUP_RURAL
KARBI ANGLONG
GOALPARA
DHUBRI
HOJAI
WEST_KARBI_ANGLONG
SOUTH SALMARA
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
N
0 25 50 100
Kilometers
Legend
Built-up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others

Source: NRSC
SISDP Update

Figure 3.6 : Land Use Land Cover Map of Assam



Crop Map of Assam
Derived from Resourcesat-2/2A LISS-IV (5.8m)

N
0 25 50 100
Kilometers
Legend
District Boundary
Agriculture Plantation
Aquaculture
Crop Land
Fallow land

Source: NRSC
SISDP Update

Figure 3.7 : Crop map derived from land use land cover

3.7. Initiatives of Department of Space (DoS)

Recognizing the potential of earth observation and communication satellites, the Department of Space (DOS) has initiated the Disaster Management Support Programme (DMSP) to provide the nation with aerospace information for effective disaster management.

Disaster Management Support Programme: In a dedicated effort to provide essential support and valuable insights during disasters, the Department of Space (DOS) under the Government of India has been actively developing innovative techniques and methodologies. These initiatives focus on integrating advanced space-based systems and services to enhance the effectiveness of disaster management efforts across the nation. One of the key programs initiated by the DOS is the Disaster Management Support Programme (DMSP). This initiative is designed to operationally weave together the critical inputs and services derived from space technology, ensuring they are delivered in a reliable and timely manner. Through this program, the DOS aims to bolster India’s commitment to comprehensive disaster management, reinforcing its capability to respond to various emergencies with agility. The DMS Programme addresses the key activities, namely, (i) Creation of digital databases at suitable scales to facilitate hazard zonation, damage assessment, and other related tasks in areas prone to disasters. (ii) Development of effective remote sensing and geographical information system (GIS) decision support tools and techniques, along with demonstrations catering to various levels of information needs.(iii). Acquisition of detailed contour information for priority areas. (iv) Strengthening the communications infrastructure to meet real-time and near real-time information transfer requirements. (v) Networking of scientific institutions to enhance data, information, and knowledge exchange.

A Decision Support Centre (DSC) has been established as a unified service provider at the National Remote Sensing Centre (NRSC) in Hyderabad. This centre interfaces with national and state disaster management agencies to facilitate operational services. Key components of the DSC include strategies for satellite and aerial data acquisition, information tailor made to user requirements, and output generation. Additionally, it focuses on disseminating the generated information to users through networking and offer support functions such as a digital database, query systems, and hazard zonation.

4. Flood Hazard Zonation using Satellite Remote Sensing

Floodplains can be effectively mapped, delineating boundaries corresponding to various return periods for flooding. This information is essential for floodplain mitigation programs, as it helps to identify areas prone to significant flood risk. Flood hazard maps illustrate regions prone to flooding up to certain extreme thresholds, showcasing boundaries based on different flood magnitudes and specific return periods. These maps can assist in regulating developmental activities within floodplains, thereby minimizing potential damages. Traditional flood hazard mapping techniques rely on historical flood data to chart floodplains. To accurately determine the extent of flooding for predicted recurrence intervals, a combination of a historical record of peak flows, detailed surveys (including cross sections, slopes, and close contour maps), and various maps such as those showing soil types, physiography, land use, vegetation, population density, infrastructure, and settlements is required. Furthermore, it is essential to consider hydraulic parameters. Collection of the required data for hazard mapping is time-consuming and challenging through ground measurements, which highlights the importance of remote sensing as a crucial tool for data collection.

Satellite remote sensing, due to its advantageous position, has demonstrated its ability to provide crucial information and services for flood disaster management. Satellites offer broad and frequent coverage of flood-affected regions, making them invaluable for monitoring disasters. Consequently, satellite data can be directly utilized to ascertain flood inundation boundaries. When satellite data sets are accessible during flood events for a floodplain, they can be effectively employed for hazard zone mapping. Additionally, up-to-date land use and land cover, as well as information on infrastructure and settlements, can be derived from satellite data.

4.1. Importance of Flood hazard zonation

Flood hazard zonation is a process used to map areas prone to flooding based on the probability and severity of flood events. The process involves identification and delineation of zones with varying levels of flood risk to assist with land-use planning, disaster preparedness, and mitigation efforts. This technique is crucial for minimizing vulnerability to flooding and increasing resilience to natural disasters in flood-prone areas. It enables proactive risk management strategies and promotes sustainable development practices, prioritizing the safety and well-being of communities living in flood-prone regions. Assam is a state that experiences floods yearly, leading to loss of life and infrastructure. Therefore, it is necessary to focus on the spatial flood occurrence pattern, temporal and spatial distribution, etc. Satellite remote sensing techniques have been deployed to comprehend the trend in the last 26 years, as presented in this atlas.

The flood hazard zonation involves the following major steps and are useful in the following ways :

Data Collection process begins with gathering relevant data such as topographic maps, hydrological and meteorological data, land-use maps, and historical flood records. Remote sensing techniques involve processing of satellite imagery. Hydrological analysis involves studying the rainfall patterns, river water levels/discharges, and watershed characteristics to understand water flow within a drainage basin. Further flood hazard maps are generated to depict the spatial distribution of flood risk across the study area. These maps typically include different flood hazard categories, such as high-risk zones (areas prone to frequent and severe flooding), moderate-risk zones, and low-risk zones. The boundaries of these categories are determined based on factors such as flood depth, velocity, frequency of occurrence, and potential impacts on human life, property, and infrastructure.

Once the flood hazard zones are delineated, risk assessment can be carried out to evaluate the potential consequences of flooding on people, property, and the environment within each zone. This involves risk assessment to population, and the potential economic losses to infrastructure and properties associated with flood events. The flood hazard maps and risk assessment are valuable tools for informed decision-making in land-use planning, zoning regulations, and development control measures. They help to identify suitable locations for infrastructure development, settlement expansion, and agricultural activities while minimizing exposure to flood hazards. Additionally, they inform the design and implementation of flood mitigation measures, such as the construction of flood control structures, floodplain management, and early warning systems. Flood hazard zonation is essential for reducing vulnerability to flooding and enhancing resilience to natural disasters in flood-prone areas. It facilitates proactive risk management strategies and promotes sustainable development practices, prioritizing the safety and well-being of communities living in flood-prone regions.

4.2. Approach

A comprehensive analysis was conducted using satellite images collected over 26 years (1998-2023). All satellite data sets were examined, and flood layers were extracted accordingly. The flood layers corresponding to each year were combined into a single inundation layer, representing the maximum flooded area for that year. This process was repeated for 25 years, resulting in an integrated flood hazard layer that illustrates the observed flood-inundated areas categorized by varying frequencies. This layer was further combined with the digital database layers of Assam. The flood inundation is depicted in different colors, indicating the different return periods observed between 1998 and 2023. Additionally, road and railway lines were included to represent the potential frequency of flooding to which they are vulnerable. Typical river courses and water bodies were also highlighted on the map. Similarly, the flood hazard layer was integrated with digital database layers of various districts, including roads, railways, villages, and more, to assess their flooding frequency. The district provided detailed information regarding each element exposed to flooding in the subsequent units. This work led to generating flood hazard zones based on the analysis of multi-temporal satellite data gathered during the floods from 1998 to 2023.

4.3. Satellite data Acquisition:

Satellite data from the Indian Remote Sensing Satellites (IRS) and microwave data from the Radarsat satellite have been collected to monitor the Brahmaputra floods since 1998. Water levels at various gauge stations were meticulously tracked during flood events, and efforts were made to synchronize the satellite data with near-peak conditions. Additionally, satellite data was obtained throughout the progression and recession of the flood wave to analyze the flood's impacts.

- Rectification: The acquired satellite datasets were rectified to a defined projection system for integration with database layers.
- Flood inundation layer: Using image processing classification algorithms water layer was extracted from the satellite data and integrated with the pre-flood river and water bodies layer to derive flood inundation layer. Figure 4.1 (a) shows the methodology for extraction of flood inundation layer from satellite data.
- Annual Flood Layer: The flood inundation layers generated for different flood waves in a calendar year were integrated to generate the maximum flood inundation extent observed in that year.
- Hazard layer: The maximum flood inundation layers corresponding to various years (1998-2023) were integrated for assessing the frequency of inundation and subsequent generation of hazard layer.
- Database integration: The hazard layer was further integrated with the database consisting of administrative boundaries, land use/ land cover, infrastructure, etc. for impact assessment and statistics generation. Figure 4.1 (b) shows the methodology for the generation of flood hazard layer
- Map Composition: Flood hazard maps were composed at State, District and Detailed levels comprising of base details and hazard layer.

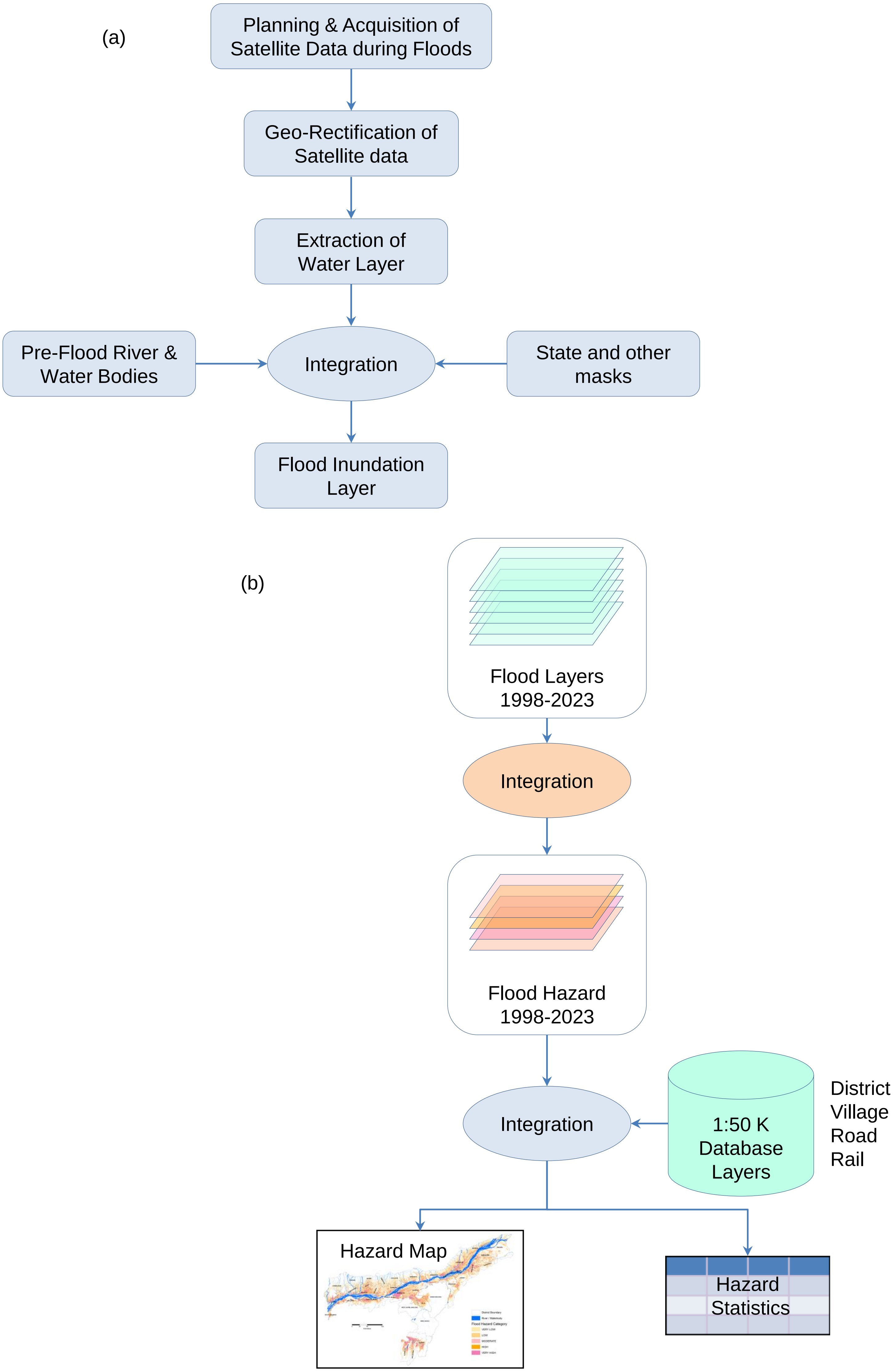

(a)
Planning & Acquisition of Satellite Data during Floods
Geo-Rectification of Satellite data
Extraction of Water Layer
Pre-Flood River & Water Bodies
Integration
State and other masks
Flood Inundation Layer
(b)
Flood Layers 1998-2023
Integration
Flood Hazard 1998-2023
Integration
1:50 K Database Layers
District
Village
Road
Rail
Hazard Map
Hazard Statistics

Figure 4.1 Methodology for generation of (a) flood inundation layer (b) flood hazard layer

4.4. Satellite Data used

Satellite datasets have been gathered from various satellites to study flooding in Assam State over the years. A total of 389 satellite datasets have been selected for flood hazard zoning, covering 25 years from 1998 to 2023. Some datasets cover the entire state of Assam, while others focus on specific regions. This study primarily utilizes IRS and Radarsat data due to their broader swath capabilities. Table 4.1 presents the satellite datasets acquired during the flood events from 1998 to 2023. It is noteworthy that multi-sensor satellite datasets were employed, including those from IRS 1C & 1D, the Resourcesat series, the Cartosat series, the RISAT series, and high-resolution optical and SAR data obtained through the International Charter, as detailed in Table 4.1. Furthermore, Table 4.2 outlines the 389 satellite datasets utilized in this study, which were essential for deriving a cumulative flood inundation map and generating both a flood frequency map and a flood hazard zone map.

Table 4.1 Satellites and sensors for flood management

S No	Satellite	Sensor	Spatial Resolution
1	IRS-1C & 1D	WiFS	188 m
		LISS-III	23.5 m
		PAN	5.8 m
2	RESOURCESAT-1, RESOURCESAT-2 & RESOURCESAT-2A	AWiFS	56 m
		LISS-III	23.5 m
		PAN/L4-MX	5.8 m
3	RISAT 1	SAR	25m, 50 m
4	RISAT 1A (EOS-04)	CRS	50 m
		MRS	33 m
		FRS	3 m
5	IRS-P5 CARTOSAT-1	PAN	2.5 m
6	CARTOSAT-2	PAN	1 m
7	RADARSAT-1 & RADARSAT-2	SAR	100 m, 50 m
8	SENTINEL 1A & SENTINEL 1B	SAR	10m
9	TERRASAR-X	SAR	16m
10	NOVASAR	SAR	20m
11	ALOS-2 PALSAR	SAR	6m
12	KOMPSAT-5	SAR	1m
13	Sentinel 2	Multispectral	10 m
14	SAOCOM 1A	SAR	10-100 m
16	RCM	SAR	1-3 m
17	MODIS	AQUA / TERRA	250m, 500m, 1 Km

Table – 4.2: List of Satellite data sets available for Assam State 1998-2023.

S No	Date	Satellite/ Sensor
1998		
1	28-06-1998	RADARSAT
2	18-07-1998	RADARSAT
3	21-07-1998	RADARSAT
4	7-09-1998	IRS WiFS
5	8-09-1998	IRS WiFS
6	10-09-1998	IRS WiFS
7	10-09-1998	RADARSAT
8	11-09-1998	IRS WiFS
9	13-09-1998	IRS WiFS
10	14-09-1998	RADARSAT
1999		
11	12-06-1999	RADARSAT
12	15-06-1999	RADARSAT
13	29-06-1999	RADARSAT
14	09-07-1999	RADARSAT
15	12-07-1999	RADARSAT
16	30-07-1999	RADARSAT
17	02-08-1999	RADARSAT
2000		
18	27-06-2000	RADARSAT
19	30-06-2000	RADARSAT
20	11-08-2000	RADARSAT
21	14-08-2000	RADARSAT
2001		
22	04-08-2001	IRS WiFS
23	07-08-2001	IRS WiFS
24	29-08-2001	IRS WiFS
2002		
25	08-07-2002	RADARSAT
26	10-07-2002	RADARSAT
27	25-07-2002	RADARSAT
28	27-07-2002	RADARSAT
2003		
29	19-06-2003	RADARSAT
30	22-06-2003	RADARSAT
31	03-07-2003	RADARSAT
32	05-07-2003	IRS WiFS
33	06-07-2003	IRS OCM
34	06-07-2003	RADARSAT
35	12-07-2003	RADARSAT
36	16-07-2003	RADARSAT
37	20-07-2003	RADARSAT
38	23-07-2003	IRS WiFS
39	12-10-2003	IRS OCM
40	14-10-2003	IRS OCM
2004		
41	28-06-2004	RADARSAT
42	29-06-2004	RADARSAT
43	05-07-2004	RADARSAT
44	06-07-2004	RADARSAT
45	10-07-2004	RADARSAT
46	13-07-2004	RADARSAT
47	16-07-2004	RADARSAT
48	20-07-2004	RADARSAT
49	22-07-2004	RADARSAT
50	23-07-2004	RADARSAT
51	27-07-2004	RADARSAT
52	29-07-2004	RADARSAT
53	30-07-2004	RADARSAT
54	10-10-2004	IRS WiFS
55	12-10-2004	IRS WiFS
2005		
56	16-07-2005	RADARSAT
57	18-07-2005	RADARSAT
2006		
58	02-06-2006	RADARSAT
59	06-06-2006	RADARSAT
60	15-06-2006	IRS AWiFS
61	16-06-2006	RADARSAT
62	26-06-2006	RADARSAT
63	28-07-2006	RADARSAT
2007		
64	21-06-2007	RADARSAT
65	28-06-2007	RADARSAT
66	14-07-2007	RADARSAT
67	19-07-2007	RADARSAT
68	22-07-2007	RADARSAT
69	29-07-2007	RADARSAT
70	30-07-2007	RADARSAT
71	02-08-2007	RADARSAT
72	05-08-2007	RADARSAT
73	07-08-2007	RADARSAT
74	08-08-2007	RADARSAT
75	12-08-2007	RADARSAT
76	16-08-2007	RADARSAT
77	26-08-2007	RADARSAT
78	29-08-2007	RADARSAT
79	01-09-2007	RADARSAT
80	08-09-2007	RADARSAT
81	09-09-2007	RADARSAT
82	12-09-2007	RADARSAT
83	13-09-2007	RADARSAT
84	16-09-2007	RADARSAT
85	18-09-2007	RADARSAT
86	25-09-2007	RADARSAT
87	04-10-2007	RADARSAT
2008		
88	17-06-2008	RADARSAT-2
89	09-07-2008	RADARSAT-1
90	16-07-2008	RADARSAT-1
91	19-07-2008	RADARSAT-2
92	23-07-2008	RADARSAT-1
93	25-07-2008	RADARSAT-1
94	02-08-2008	RADARSAT-1
95	09-08-2008	RADARSAT-1
96	23-08-2008	RADARSAT-2
97	30-08-2008	RADARSAT-1
98	02-09-2008	RADARSAT-1
99	04-09-2008	RADARSAT-2
100	09-09-2008	RADARSAT-2
101	12-09-2008	RADARSAT-1
102	14-09-2008	RADARSAT-2
103	31-10-2008	RADARSAT-2
2009		
104	01-07-2009	RADARSAT-1
105	08-07-2009	RADARSAT-2
106	09-07-2009	RADARSAT-2
107	11-07-2009	RADARSAT-1
108	15-07-2009	RADARSAT-2
109	02-08-2009	RADARSAT-2
110	06-08-2009	RADARSAT-2
111	16-08-2009	RADARSAT-2
112	19-08-2009	RADARSAT-1
113	28-08-2009	RADARSAT-1

S No	Date	Satellite/ Sensor
2010		
114	19-06-2010	RADARSAT-1
115	21-06-2010	RADARSAT-2
116	24-06-2010	RADARSAT-2
117	29-06-2010	RADARSAT-2
118	01-07-2010	RADARSAT-2
119	03-07-2010	RADARSAT-1
120	04-07-2010	RADARSAT-2
121	08-07-2010	RADARSAT-2
122	18-07-2010	RADARSAT-2
123	20-07-2010	RADARSAT-2
124	25-07-2010	RADARSAT-2
125	28-07-2010	RADARSAT-2
126	31-07-2010	RADARSAT-1
127	17-08-2010	RADARSAT-1
128	26-08-2010	RADARSAT-2
129	29-08-2010	RADARSAT-2
130	06-09-2010	RADARSAT-2
131	11-09-2010	RADARSAT-2
132	16-09-2010	RADARSAT-2
133	18-09-2010	RADARSAT-1
134	20-09-2010	RADARSAT-2
135	23-09-2010	RADARSAT-1
2011		
136	29-06-2011	RADARSAT-2
137	01-07-2011	RADARSAT-1
138	06-07-2011	RADARSAT-2
139	08-07-2011	RADARSAT-1
140	17-07-2011	RADARSAT-1
141	20-07-2011	RADARSAT-1
142	22-07-2011	RADARSAT-2
143	23-07-2011	RADARSAT-2
144	25-07-2011	RADARSAT-1&2
145	30-07-2011	RADARSAT-2
146	03-08-2011	RADARSAT-1
147	09-08-2011	RADARSAT-1
148	13-08-2011	RADARSAT-2
149	18-08-2011	RADARSAT-1
150	20-08-2011	RADARSAT-1
151	25-08-2011	RADARSAT-1
2012		
152	06-06-2012	RADARSAT-2
153	08-06-2012	RADARSAT-2
154	20-06-2012	RADARSAT-1
155	27-06-2012	RADARSAT-2
156	29-06-2012	RADARSAT-2
157	29-06-2012	RADARSAT-2
158	30-06-2012	RADARSAT-2
159	02-07-2012	RADARSAT-1
160	09-07-2012	RADARSAT-2
161	19-07-2012	RADARSAT-1
162	24-07-2012	RADARSAT-2
163	29-07-2012	RADARSAT-1
164	29-08-2012	RADARSAT-1
165	16-09-2012	RISAT-1
166	19-09-2012	RADARSAT-2
167	22-09-2012	RADARSAT-1
168	24-09-2012	RADARSAT-2
169	26-09-2012	RADARSAT-2
170	27-09-2012	RADARSAT-2
171	29-09-2012	RADARSAT-1
2013		
172	01-07-2013	RADARSAT-2
173	02-07-2013	RADARSAT-2
174	08-07-2013	RISAT-1
175	09-07-2013	RADARSAT-2
176	09-07-2013	RISAT-1
177	14-08-2013	RADARSAT-2
178	09-09-2013	RADARSAT-2
179	10-09-2013	MODIS
180	11-09-2013	RISAT-1
181	12-09-2013	RADARSAT-2
182	13-09-2013	MODIS
2014		
183	16-08-2014	RISAT-1
184	17-08-2014	RISAT-1
185	19-08-2014	RADARSAT-2
186	25-08-2014	RADARSAT-2
187	27-08-2014	MODIS
188	28-08-2014	RADARSAT-2
189	29-08-2014	RISAT-1
190	23-09-2014	RISAT-1
191	24-09-2014	RADARSAT-2
192	29-09-2014	MODIS AQUA
2015		
193	08-06-2015	RISAT-1
194	09-06-2015	RISAT-1
195	10-06-2015	RADARSAT-2
196	12-06-2015	RADARSAT-2
197	14-06-2015	RADARSAT-2
2015		
198	15-06-2015	RADARSAT-2
199	17-07-2015	RISAT-1
200	18-07-2015	RADARSAT-2
201	21-08-2015	RISAT-1
202	22-08-2015	RISAT-1
203	23-08-2015	RADARSAT-2
204	25-08-2015	RADARSAT-2
205	29-08-2015	RISAT-1
206	30-08-2015	RISAT-1
207	01-09-2015	RISAT-1
208	02-09-2015	RADARSAT-2
209	03-09-2015	RISAT-1
210	04-09-2015	RADARSAT-2
211	05-09-2015	RISAT-1
212	06-09-2015	RADARSAT-2
213	07-09-2015	RISAT-1
214	09-09-2015	RADARSAT-2
2016		
215	25-04-2016	MODIS / TERRA
216	26-04-2016	RADARSAT-2
217	23-06-2016	RADARSAT-2
218	05-07-2016	RISAT-1
219	07-07-2016	RADARSAT-2
220	12-07-2016	RADARSAT-2
221	13-07-2016	RISAT-1
222	14-07-2016	RISAT-1
223	19-07-2016	RISAT-1
224	22-07-2016	RADARSAT-2
225	24-07-2016	RADARSAT-2
226	26-07-2016	RADARSAT-2
227	27-07-2016	RADARSAT-2
228	29-07-2016	RADARSAT-2
2017		
229	03-06-2017	Radarsat-2
230	06-06-2017	MODIS/AQUA
231	07-06-2017	MODIS/TERRA
232	08-06-2017	Radarsat-2
233	13-06-2017	Sentinel-1A
234	15-06-2017	Aqua/ Modis
235	18-06-2017	Radarsat-2
236	20-06-2017	Radarsat-2
237	23-06-2017	Radarsat-2
238	28-06-2017	Radarsat-2
239	30-06-2017	Sentinel-1A
240	04-07-2017	Radarsat-2
241	07-07-2017	Radarsat-2
242	09-07-2017	Radarsat-2
243	12-07-2017	Radarsat-2
244	14-07-2017	Radarsat-2
245	15-07-2017	MODIS

S.No	Date	Satellite/Sensor
246	19-07-2017	Radarsat-2
247	22-07-2017	Radarsat-2
248	12-08-2017	Radarsat-2
249	15-08-2017	Radarsat-2
250	18-08-2017	Sentinel-1A
251	19-08-2017	Radarsat-2
252	22-08-2017	Radarsat-2
253	29-08-2017	Radarsat-2
254	10-09-2017	Radarsat-2
2018		
255	08-06-2018	Sentinel-1A
256	15-06-2018	RADARSAT-2
257	16-06-2018	RADARSAT-2
258	20-06-2018	RADARSAT-2
259	23-06-2018	RADARSAT-2
260	01-07-2018	RADARSAT-2
261	07-07-2018	RADARSAT-2
262	16-07-2018	RADARSAT-2
263	24-07-2018	RADARSAT-2
264	31-07-2018	RADARSAT-2
265	04-08-2018	RADARSAT-2
266	07-08-2018	RADARSAT-2
267	14-08-2018	RADARSAT-2
268	01-09-2018	RADARSAT-2
269	08-09-2018	RADARSAT-2
270	13-09-2018	RADARSAT-2
2019		
271	10-07-2019	Sentinel-1A
272	12-07-2019	RADARSAT-2
273	14-07-2019	RADARSAT-2
274	16-07-2019	RADARSAT-2
275	17-07-2019	RADARSAT-2
276	19-07-2019	RADARSAT-2
277	20-07-2019	ALOS-2PALSAR
278	21-07-2019	RADARSAT-2
279	22-07-2019	RADARSAT-2
280	24-07-2019	Sentinel-1A
281	28-07-2019	RADARSAT-2
282	29-07-2019	RADARSAT-2
283	02-08-2019	RADARSAT-2
2020		
284	02-06-2020	Sentinel-1A
285	21-06-2020	Sentinel-1A
286	24-06-2020	RADARSAT-2
287	26-06-2020	RADARSAT-2
288	28-06-2020	Sentinel-1A
289	01-07-2020	Sentinel-1A
290	03-07-2020	Sentinel-1A
291	08-07-2020	Sentinel-1A
292	10-07-2020	Sentinel-1A
293	19-07-2020	Terra SAR-X
294	19-07-2020	KOMPSAT 5
295	22-07-2020	Sentinel-1B
296	25-07-2020	Sentinel-1A
297	27-07-2020	RADARSAT 2
298	30-07-2020	Sentinel-1A
299	01-08-2020	Sentinel-1A
300	03-08-2020	MODIS AQUA
301	06-08-2020	MODIS TERRA
302	28-09-2020	Sentinel-1A
303	28-09-2020	MODIS TERRA
304	30-09-2020	Sentinel-1A
2021		
305	07-06-2021	Sentinel-1A
306	09-06-2021	Sentinel-1A
307	28-06-2021	Sentinel-1A
308	01-07-2021	Sentinel-1A
309	03-07-2021	Sentinel-1A
310	10-07-2021	Sentinel-1A
311	13-07-2021	Sentinel-1A
312	13-07-2021	NOVASAR-1
313	15-07-2021	Sentinel-1A
314	22-07-2021	Sentinel-1A
315	27-08-2021	RADARSAT-2
316	27-08-2021	Sentinel-1A
317	28-08-2021	Sentinel-1A
318	30-08-2021	Sentinel-1A
319	31-08-2021	MODIS AQUA
320	01-09-2021	RADARSAT-2
321	03-09-2021	Sentinel-1A
322	05-09-2021	MODIS AQUA
323	06-09-2021	Sentinel-1A
2022		
324	18-05-2022	Sentinel-1A
325	19-05-2022	RISAT 1A
326	19-05-2022	RADARSAT-2
327	19-05-2022	NOVA SAR
328	20-05-2022	NOVASAR
329	20-05-2022	RISAT-1A
330	21-05-2022	Sentinel-1A
331	22-05-2022	RISAT 1A
332	23-05-2022	Sentinel-1A
333	24-05-2022	MODIS AQUA
334	25-05-2022	ALOS-2 PALSAR
335	25-05-2022	Sentinel-1A
336	26-05-2022	Sentinel-1A
337	26-05-2022	MODIS TERRA
338	16-06-2022	Sentinel-1A
339	16-06-2022	RISAT 1A
340	17-06-2022	RISAT 1A
341	18-06-2022	RISAT 1A
342	19-06-2022	Sentinel-1A
343	19-06-2022	RADARSAT-2
344	20-06-2022	RISAT 1A
345	21-06-2022	NOVASAR
346	21-06-2022	RISAT 1A
347	21-06-2022	Sentinel-1A
348	22-06-2022	ALOS-2 PALSAR
349	23-06-2022	RISAT 1A
350	24-06-2022	Sentinel-1A
351	24-06-2022	RISAT 1A
352	25-06-2022	RISAT 1A
353	26-06-2022	RISAT 1A
354	27-06-2022	RISAT 1A
355	28-06-2022	RISAT 1A
356	28-06-2022	Sentinel-1A
357	29-06-2022	RISAT 1A
358	01-07-2022	Sentinel-1A
359	03-07-2022	Sentinel-1A
360	05-07-2022	RISAT 1A
361	05-07-2022	Sentinel-1A
362	06-07-2022	RISAT 1A
363	06-07-2022	Sentinel-1A
364	07-07-2022	Sentinel-1A
365	08-07-2022	Sentinel-1A
366	08-07-2022	RISAT 1A
367	12-07-2022	Sentinel-1A SAR
368	13-07-2022	Resourcesat-2 AWiFS
369	17-07-2022	Sentinel-1A SAR
2023		
370	16-06-2023	Sentinel-1A
371	17-06-2023	RISAT-1A MRS
372	18-06-2023	RISAT-1A CRS
373	19-06-2023	RISAT-1A CRS
374	20-06-2023	RISAT-1A CRS
375	21-06-2023	RISAT-1A CRS
376	22-06-2023	RISAT-1A CRS
377	23-06-2023	Sentinel-1A
378	25-06-2023	Sentinel-1A
379	26-06-2023	Sentinel-1A
380	26-06-2023	RISAT-1A CRS
381	27-06-2023	RISAT-1A CRS
382	29-06-2023	RISAT-1A CRS
383	07-07-2023	RISAT-1A CRS
384	09-07-2023	RISAT-1A CRS
385	12-07-2023	RISAT-1A MRS
386	15-07-2023	RISAT-1A MRS
387	20-07-2023	RISAT-1A MRS
388	29-08-2023	Sentinel-1A
389	31-08-2023	RISAT-1A MRS

4.5 Major Flood Events in Assam State :

The north-eastern state of Assam has been grappling with devastating floods for several years. The situation has been worsening with each passing year, causing widespread destruction of property and loss of life. To provide timely assistance to the affected communities, the Indian Space Research Organisation (ISRO) at the National Remote Sensing Centre (NRSC) introduced satellite-based mapping and monitoring in 1998 as part of its Disaster Management Support Programme. Through this program, ISRO leverages the advantages of satellite availability and temporal satellite capturing to support near real-time mapping and monitoring of floods. The technology provides a bird's eye view of the affected areas, allowing for a quick and accurate assessment of the extent of damage and the areas that need immediate attention. The data collected through satellite imagery is then used to inform relief and rescue operations and to provide critical information to the local authorities and the affected communities. Over the years, the program has played a critical role in aiding disaster management efforts. It has been a valuable tool in mitigating the impact of floods in Assam.

Floods in Assam have arisen due to elevated water levels in the Brahmaputra, Barak, and their tributaries, occurring at various times throughout the monsoon season. Multi-sensor satellite data acquired from Indian and foreign remote sensing satellites and high/medium resolution optical/Microwave satellite data are used for real near-time flood mapping and monitoring, and the reference satellite dataset is mentioned in Table 4.1 and Table 4.2. Based on the occurrence of major flood events in the monsoon seasons in the last 6 years, a list of major flood events is presented in Table 4.3, which describes the approximate duration of flood events each year from 1998-2023. The annual Cumulative flood inundation layers are analyzed, and the trends in flood inundation areas are discussed in this report, as shown in Figure 4.2.

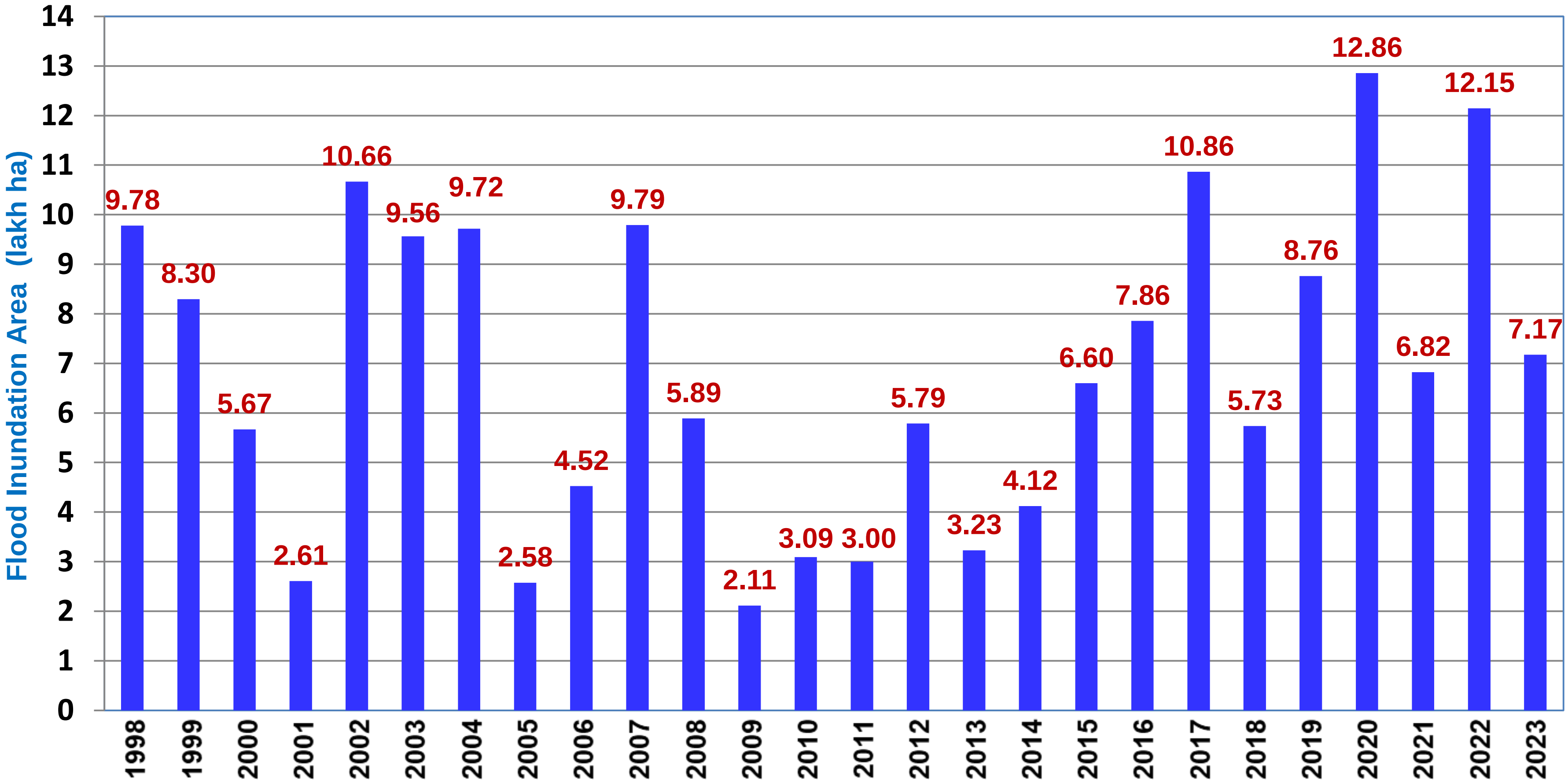


Figure 4.2: Annual Cumulative flood inundation area

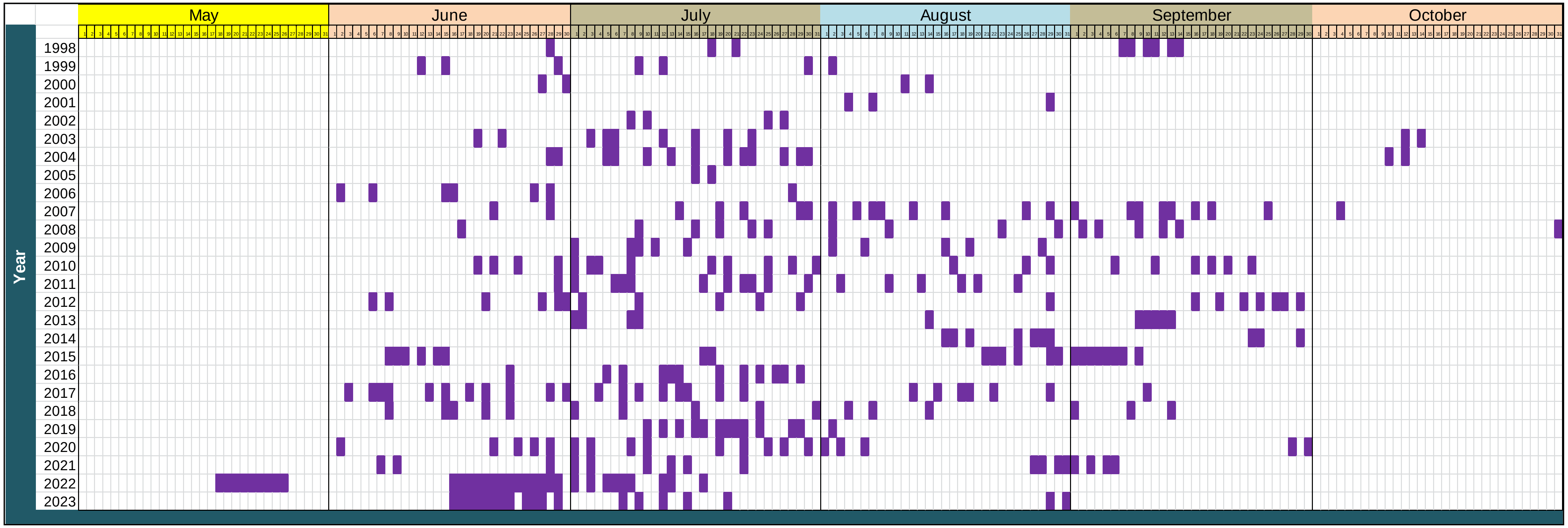
Table 4.3: Major flood events in Assam state

S. No	Year	Description of the flood event	Districts affected	No of Maps
1	1998	Floods occurred in Assam during June 1998	6	10
2	1999	Flood occurred during 12-29th June, 9-30th Aug, 2nd Sep	-	7
3	2000	Flood occurred during 27-30th June, 11-14th Aug	-	4
4	2001	Flood occurred during 4-29th Aug	-	3
5	2002	Flood occurred during 8-27th July	-	4
6	2003	Floods have affected in two spells during 16th 23rd June, 2003	21	12
7	2004	Floods occurred in 4 spells during 20-21st, April, 28th Jun- 06th Jul , 10th Jul-5th August, 10-13th Oct , 2004	9	15
8	2005	Floods occurred in during 16-18th July	21	2
9	2006	Floods occurred in 3 spells during 2nd -16th Jun, 26th June, 26th – 28th July 2006	24	6
10	2007	Floods occurred in 2 spells during 21-26th Jaun , 14th Jul- 4th Oct 2007	21	24
11	2008	Floods occurred in 2 spells during 9-23rd Jul, 2nd Aug -14th Sep 2008	21	16
12	2009	Floods occurred during 1st Jul – 28th Aug 2009 In addition, Matmora embankment breach in Lakhimpur district.	21	10
13	2010	Floods occurred during in 19th Jun – 31st Jul, 17th Aug – 23rd Sep	24	22
14	2011	Floods occurred during in 29th Jun – 18th August 2011	16	16
15	2012	Floods occurred during in 6th Jun – 07th Oct 2012	28	20
16	2013	Floods occurred during 1-10th Jul, 9-14th Aug, 9-12th Sep 2013	27	11
17	2014	Floods occurred during 16th Aug – 29th Aug, 22nd – 29th Sep 2014	27	10
18	2015	Flood occurred during 8-15th June, 17-18 July, 21-30th Aug, 1-9th Sep	-	22
19	2016	Floods occurred during 24-26th, April, 5-29th July 2016	20	14
20	2017	Floods occurred during 3rd Jun -22nd Jul 2017	36	26
21	2018	Floods occurred during 8rd Jun -13th Sep	37	16
22	2019	Floods occurred during 10th Jul -2nd Aug 2019	34	13
23	2020	Floods occurred during 2-28th June, 1-30th July, 1-6th Aug, 8-30th Sep	34	21
24	2021	Floods occurred during 7th June to 6th Sep 2021	33	19
25	2022	Floods occurred during 18th May – 26th May and 16th June – 17th July 2022	35	32
26	2023	Floods occurred during 16th- 29th June and 7th -20th Jul and 29th -31st Aug 2023	32	20

An extensive analysis was conducted on 389 multi-sensor satellite datasets collected over 26 years to evaluate the spatial flood inundation scenarios and cumulative flood inundation impact in Assam State. This analysis revealed that the total cumulative flood inundation area in Assam is estimated to be 28.75 lakh hectares, spread across 35 districts. The extent of flood inundation varied significantly, ranging from 2.11 lakh ha in 2009 to 12.85 lakh ha in 2020, indicating the severity of the floods and their impact on the region over the years. These findings provide valuable insights for policymakers and stakeholders to take necessary measures to mitigate the effects of floods and protect the region from future inundation.

Flood inundation areas between 10–12.85 lakh ha were observed during four years: 2002, 2017, 2020, and 2022. Areas between 8–10 lakh ha were inundated in six years: 1998, 1999, 2003, 2004, 2007, and 2019. Further, flood inundation between 5–8 lakh ha occurred in eight years: 2000, 2008, 2012, 2015, 2016, 2018, 2021, and 2023. Lastly, flood-affected areas ranging from 2–5 lakh ha were recorded in eight years: 2001, 2005, 2006, 2009, 2010, 2011, 2013, and 2014.

Figure 4.3: Temporal view of flood map dissemination during 1998-2023



4.6. Flood Hazard Zonation Criteria

The flood hazard zonation process described in this report follows a series of steps outlined in the methodology section. Annual cumulative flood layers are used to estimate the frequency of flood occurrence in 50m pixels on the ground. Based on this frequency, the pixels are categorized into flood hazard zones ranging from Very Low (I) to Very High (V), as given in Table 4.4. These categories have been established according to guidelines issued by the Committee under the direction of the National Disaster Management Authority (NDMA). A legend is included in the report to help readers visualize the Flood Hazard Coding schema while reviewing the maps included throughout the report.

Table 4.4 : Flood Hazard Zonation Criteria

Sl.No	Hazard Class	Flood Frequency
I	Very Low	1-3 times
II	Low	4-6 times
III	Moderate	7-10 times
IV	High	11-14 times
V	Very High	Greater Than 14 times

🟨 Very Low
🟧 Low
🟥 Moderate
🟧 High
🟪 Very High

4.7. Flood Hazard Ranking Index

The Flood Hazard Ranking index is derived for each district using the weightage parameters viz. Hazard Zone Categories (as per Table 4.5), Submergence Area Percentage concerning the Total Geographical Area (TGA) (as per Table 4.6), and Flood wave index (as per Table 4.7). Further, the definitions for each of the parameters are explained here, and the Flood Hazard Ranking Index is estimated using the formulas shown below.

Flood Hazard Zone (H) : The factor for Flood Hazard Zone is the number ranging from 1-5 representing Very Low (1), Low(2), Moderate (3), High (4), and Very High (5), as depicted in Table. 4.4. The area of flood hazard category pixels is aggregated at the category to know for which category, the areas are estimated maximum at a district level.

Weightage for Flood Submergence Area (A) : This is the weightage factor determined based on the cumulative flood inundation area percentage to the total geographic area observed during 1998-2023 in a district under calculation. The value of A varies from 1-10 following the classification approach defined in Table. 4.5.

Flood hazard Index = ∑ Hazard Category (H) x Hazard Area (A)

Weightage for Flood Wave Index (F) : Water levels in the river cross sections at the identified water level measuring stations are analyzed for the period of 25 years, 1998-2023, to calculate the number of times the water level has crossed the danger mark at the river gauge station, which is existing in a district which is under consideration for the determination of Flood Hazard Ranking (Table.4.6).

Flood hazard Ranking Index = (∑ Hazard Category (H) x Hazard Area (A)) x Flood Wave Index (F)

Table 4.5: Weightage factor for Flood Hazard Zone

Hazard Zones	Weightage for Hazard Zones (H)
Very High	5
High	4
Moderate	3
Low	2
Very Low	1

Table 4.6: Weightage factor for % submerged area for each district

Percentage of area Submerged	Weightage (A)
0-10 %	1
11-20%	2
21-30%	3
31-40%	4
41-50%	5
51-60%	6
61-70%	7
71-80%	8
81-90%	9
91-100%	10

Table 4.7: Weightage factor for Flood Wave Index

Flood waves during 1998-2023*	Weightage for annual flood wave index (F)
>20	3
11 to 20	2
<10	1

Table 4.8: Flood Hazard Ranking of a District

(∑ H x A) x F	Flood Hazard Ranking Index
>=40	I
20 to 39	II
1 to 19	III

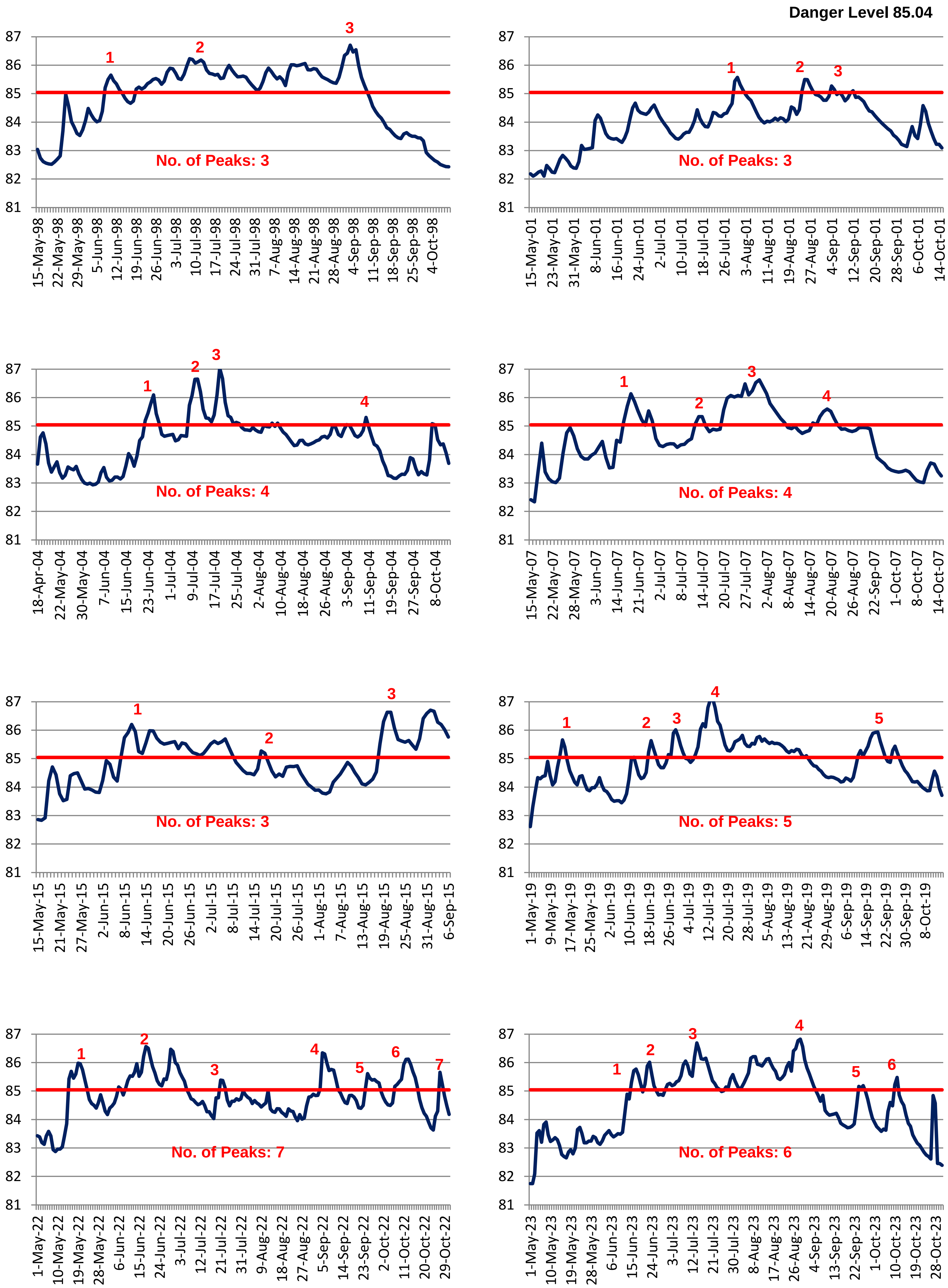
To estimate the number of flood waves , the daily water levels are plotted and the number of flood waves are estimated considering the value of water level which is beyond danger level. One example for Nematighat gauge station is demonstrated in Figure.4.4.

An example for the estimation of Flood Hazard ranking Index is shown in Table.4.9 with the information about Jorhat district where gauge station is Nematighat is shown to demonstrate the Flood Hazard Ranking Index calculation.

Table.4.9: Example for the estimation of Flood Hazard ranking Index

District	Area of the district	Hazard Zones	Weightage For Hazard Zones(H)	Area Submerged (hectares)	% of Area Submerged	Weightage for % of area Submerged (A)	(H x A)	Hazard Index ∑ H x A	Gauge Station	No. of Peaks	Weightage For Annual Flood Wave Index (F)	(∑ H x A) x F	Flood Hazard Ranking Index
Jorhat	190628	Very High	5	8232	4.32	1	5	18	Neamatighat	133	3	54	**I**
		High	4	8971	4.71	1	4						
		Moderate	3	16783	8.80	1	3						
		Low	2	20899	10.96	2	4						
		Very Low	1	37933	19.90	2	2						

Figure 4.4: Example of the Flood Waves 1998-2023



5. Observations

Based on satellite-derived cumulative flood inundation data from 1998 to 2023, the total area affected by flooding in Assam is estimated as 27.08 lakh ha (Table 5.1). The flood inundation frequency has been computed using a spatial resolution of 50m x 50m grids, derived from the historical data and temporal-spatial analysis for each pixel. The flood hazard areas have been classified into five categories, ranging from very low to very high hazard zones, according to the classification schema developed by an expert committee established by the NDMA. The area classified as a very high flood hazard is estimated to encompass 3.26 lakh ha, while the high category covers 2.86 lakh ha. The moderate category accounts for 4.65 lakh ha, and the low category includes 5.32 lakh ha. The very low hazard category spans 10.96 lakh ha. Figure 5.1 a and b illustrates the distribution of these various flood hazard categories and their respective areas. The Spatial Flood Hazard Zonation Map is illustrated in Figure 5.2. This map depicts the spatial distribution of flood severity across various districts in Assam State. A detailed district-wise flood hazard zonation scenario is presented in Table 5.2. From 1998 to 2023, cumulative flood inundation affected 70% to 80% of the total geographical area in the Bajali and Morigaon Districts. Similarly, Sivasagar, Nagaon, South Salmara, Lakhimpur, Nalbari, Dhemaji, Barpeta, and Hojai districts experienced flood impacts affecting approximately 50% to 70% of their total geographical area. Furthermore, 19 districts witnessed flood impacts affecting 30% to 50% of their geographical area, while the remaining seven districts experienced less than 30% being flood-affected.

Table 5.1 Flood Affected area and Hazard severity

Sl no	Hazard Severity	Flood Hazard Area (ha)	% Flood Hazard (With Respect To State Geographic Area)	% Flood Hazard (With Respect To Total Flood Hazard Area)
1	Very High	326522	4.2	12.06
2	High	286886	3.7	10.59
3	Moderate	465765	5.9	17.20
4	Low	532891	6.8	19.68
5	Very Low	1096239	14.0	40.48
Total Flood Affected area		**2708302**		**100**

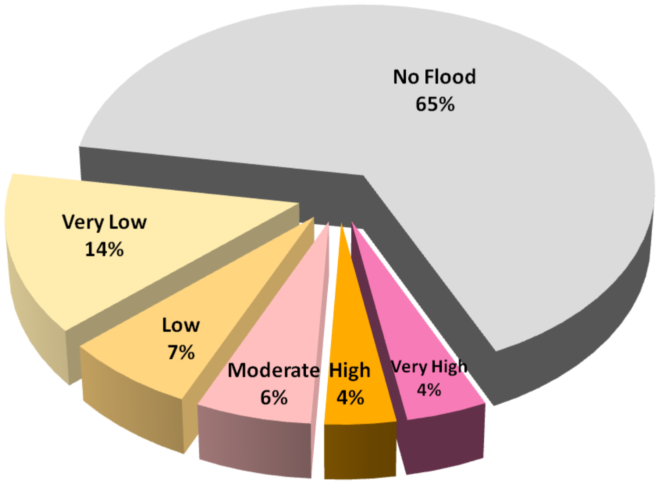


Figure 5.1a Percentage of various hazard categories with respect to total hazard in the state

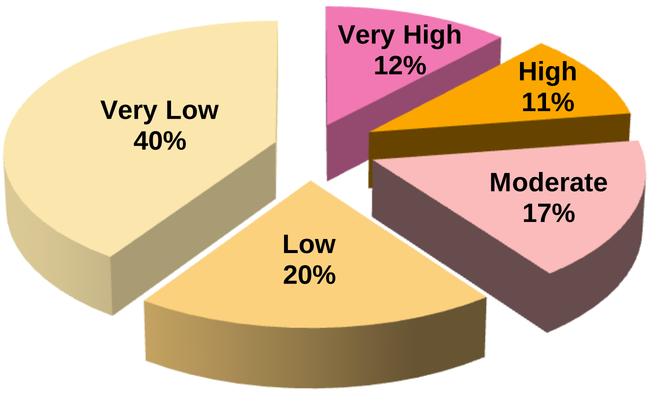


Figure 5.1b Percentage of various hazard categories with respect to total flood hazard area

Table 5.2; District wise flood hazard zonation scenario

S.No	District	Total Geographic Area(TGA)	Very Low	% TGA	Low	%TGA	Moderate	%TGA	High	%TGA	Very High	%TGA
1	Bajali	38920	9017	23.17	6486	16.66	6896	17.72	5358	13.77	3525	9.06
2	Baksa	154372	29948	19.40	9931	6.43	6316	4.09	2355	1.53	699	0.45
3	Barpeta	189564	23928	12.62	17624	9.30	22666	11.96	18451	9.73	18379	9.70
4	Biswanath	213982	36406	17.01	16564	7.74	14725	6.88	10749	5.02	10870	5.08
5	Bongaigaon	114633	20980	18.30	8509	7.42	6077	5.30	3439	3.00	3015	2.63
6	Cachar	378209	34477	9.12	16905	4.47	17056	4.51	13251	3.50	34902	9.23
7	Charaideo	105005	23722	22.59	10515	10.01	8033	7.65	3610	3.44	1209	1.15
8	Chirang	185215	18123	9.78	3344	1.81	1214	0.66	159	0.09	6	0.00
9	Darrang	154006	28269	18.36	16591	10.77	14318	9.30	8476	5.50	6111	3.97
10	Dhemaji	255768	65246	25.51	36918	14.43	26664	10.43	9824	3.84	4164	1.63
11	Dhubri	176122	25646	14.56	15521	8.81	16137	9.16	10817	6.14	13137	7.46
12	Dibrugarh	339723	65880	19.39	31334	9.22	27626	8.13	14074	4.14	10821	3.19
13	Dima Hasao	487315	28	0.01	0	0.00	0	0.00	0	0.00	0	0.00
14	Goalpara	201313	31689	15.74	15682	7.79	15545	7.72	10018	4.98	12779	6.35
15	Golaghat	327201	68035	20.79	25431	7.77	21518	6.58	13927	4.26	11005	3.36
16	Hailakandi	132958	18657	14.03	7419	5.58	5548	4.17	4240	3.19	6709	5.05
17	Hojai	145491	22169	15.24	15329	10.54	15054	10.35	11160	7.67	11345	7.80
18	Jorhat	190628	37933	19.90	20899	10.96	16783	8.80	8971	4.71	8232	4.32
19	Kamrup Metro	102743	4479	4.36	2849	2.77	3293	3.21	3018	2.94	8186	7.97
20	Kamrup Rural	306425	44127	14.40	28533	9.31	29369	9.58	17419	5.68	18406	6.01
21	Karbi Anglong	730630	16381	2.24	8728	1.19	9356	1.28	7037	0.96	4148	0.57
22	Karimganj	185925	28380	15.26	11095	5.97	9788	5.26	7905	4.25	18208	9.79
23	Kokrajhar	318735	38308	12.02	8363	2.62	3431	1.08	1515	0.48	2562	0.80
24	Lakhimpur	289443	73729	25.47	34261	11.84	31047	10.73	20303	7.01	20651	7.13
25	Majuli	117306	10398	8.86	11287	9.62	13060	11.13	6956	5.93	3646	3.11
26	Morigaon	145466	18803	12.93	15707	10.80	19111	13.14	15936	10.96	33120	22.77
27	Nagaon	257524	57893	22.48	32615	12.66	28079	10.90	19612	7.62	25529	9.91
28	Nalbari	107847	26560	24.63	14372	13.33	14039	13.02	7096	6.58	3953	3.67
29	Sivasagar	155176	32362	20.85	20226	13.03	20422	13.16	13620	8.78	20505	13.21
30	Sonitpur	311710	48671	15.61	23505	7.54	17136	5.50	8647	2.77	7302	2.34
31	South Salmara	33648	5057	15.03	4988	14.82	5616	16.69	3732	11.09	1691	5.03
32	Tamulpur	96803	20243	20.91	7027	7.26	2671	2.76	351	0.36	4	0.00
33	Tinsukia	383365	58798	15.34	17327	4.52	8202	2.14	2180	0.57	1128	0.29
34	Udalguri	202807	42181	20.80	13387	6.60	6281	3.10	1672	0.82	198	0.10
35	West Karbi Anglong	312792	9722	3.11	3623	1.16	2692	0.86	1010	0.32	381	0.12
	Total	7848770	1096239	13.97	532891	6.79	465765	5.93	286886	3.66	326522	4.16

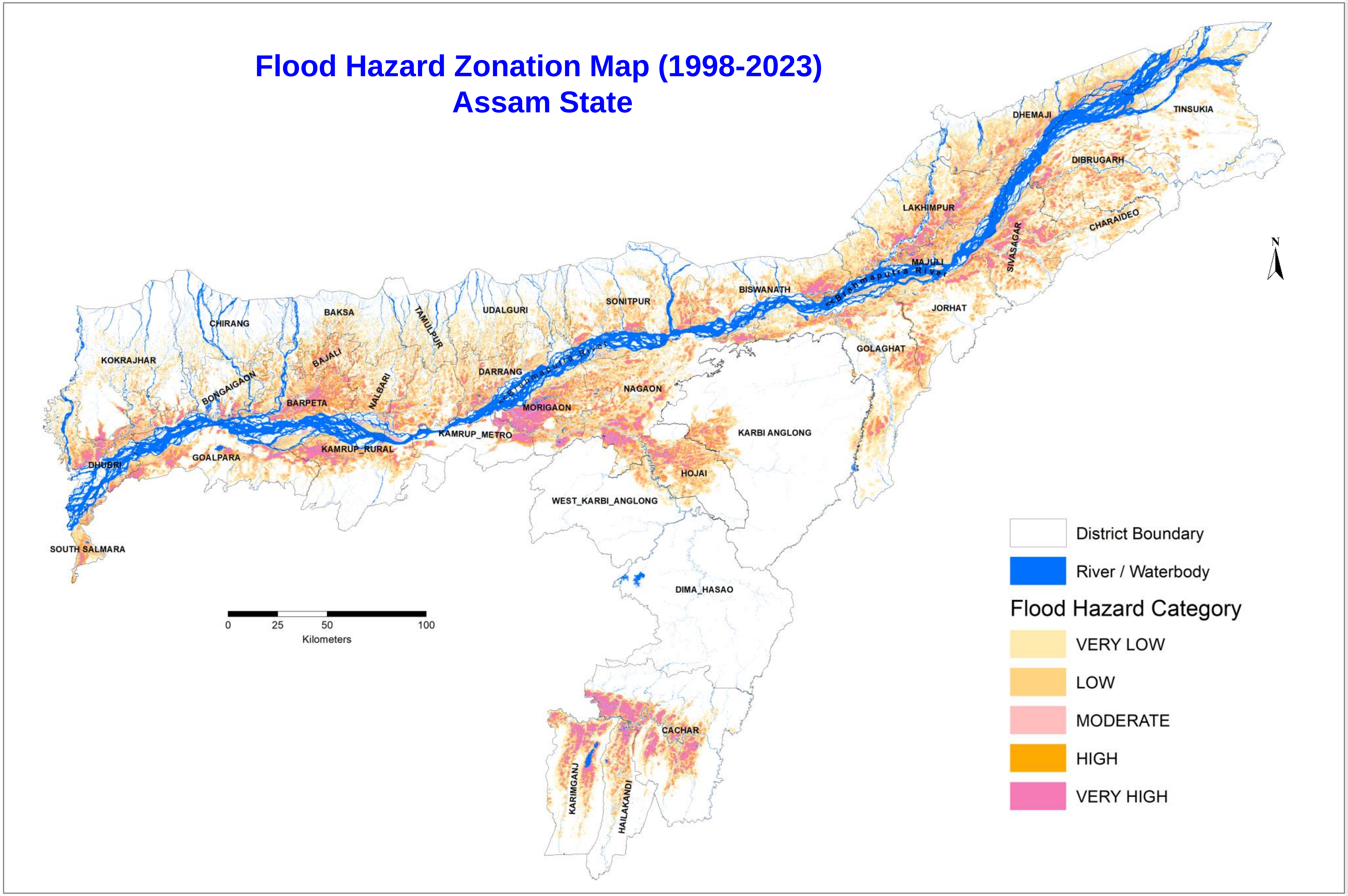

Flood Hazard Zonation Map (1998-2023)
Assam State
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
SIVASAGAR
MAJULI
Brahmaputra River
BISWANATH
JORHAT
SONITPUR
UDALGURI
BAKSA
TAMULPUR
CHIRANG
KOKRAJHAR
BAJALI
GOLAGHAT
DARRANG
NAGAON
BONGAIGAON
BARPETA
NALBARI
MORIGAON
KAMRUP_METRO
KARBI ANGLONG
KAMRUP_RURAL
GOALPARA
DHUBRI
HOJAI
WEST_KARBI_ANGLONG
SOUTH SALMARA
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
N
0
25
50
100
Kilometers
District Boundary
River / Waterbody
Flood Hazard Category
VERY LOW
LOW
MODERATE
HIGH
VERY HIGH

Figure. 5.2: Spatial Flood Hazard Zonation Map

The analysis of village-level hazard zonation statistics aims to assess the severity of flood situations at regional and local levels. A total of 1,876 villages are classified in the Very High category across 119 circles, while 890 villages fall into the High category within 124 circles. Additionally, 1,870 villages are categorized as Moderate across 147 circles, and 1,310 villages are classified as Low within 149 circles. Furthermore, 11039 villages are categorized as Very Low, spanning 166 circles. A village boundary map illustrates the hazard category of each village at the state level (see Figure 5.3). Table 5.3 provides a detailed breakdown of the number of villages in each hazard category by district. At the district level, the Flood Hazard Index is estimated by considering the severity of flood situation and various factors influencing flood hazard zonation. Seventeen districts are classified as Hazard Rank I, four districts are designated as Hazard Rank II, and 14 districts are categorized as Hazard Rank III.

The district-wide Flood Hazard Ranking index is illustrated in Figure 5.4. Spatial land use and land cover information derived from recent legacy satellite data from Resources at 2 LISS IV has been utilized in this study to correlate and estimate the area under crop cultivation in Assam in relation to cumulative flood-affected areas and flood hazard zones. The analysis is presented at the district level. Approximately 18.22 lakhs of land is estimated to be vulnerable to flood inundation. Within this area, 2.58 lakhs fall under the very high flood hazard category, 2.22 lakhs are classified as high hazard, 3.34 lakhs as moderate hazard, 3.57 lakhs as low hazard, and 6.49 lakhs as very low hazard (see Table 5.4). Flood hazard maps were prepared and submitted to the Assam State Disaster Management Authority (ASDMA). These maps were then distributed to each district administration, and feedback was collected. Nearly all districts provided positive responses; however, some submitted validation reports in various formats, partially integrated into the atlas. The new district boundaries, as provided by ASDMA, have also been incorporated into the atlas.

Limitations

The flood hazard zonation was carried out using satellite data from the National Remote Sensing Centre (NRSC). It is important to note that satellite coverage may only sometimes align with peak flooding events. Additionally, not all river gauge stations capture the highest water levels daily. In states like Assam, where the terrain is relatively flat, flood inundation can persist for several days, even after the peak. As a result, satellite data often reflects the peak conditions. The observed flood inundation includes flooding from embankment breaches and rainwater accumulation in low-lying areas. Some limited ground verification was performed, which indicated that the satellite-derived flood inundation correlated well with on-site observations.

Field Validation

Flood Hazard Zonation Categories

Annual cumulative flood layers (1998-2023) are used to estimate the frequency of flood occurrence. Based on this frequency, the pixels are categorized into flood hazard zones ranging from Very Low (I) to Very High (V), as shown in Table. These categories have been established according to guidelines issued by the Expert Committee under the direction of the National Disaster Management Authority (NDMA).The following summary is made to represent the accuracy of hazard categorization.

S. No	Flood Hazard Category	Flood Frequency
I	Very Low	1-3 times
II	Low	4-6 times
III	Moderate	7-10 times
IV	High	11-14 times
V	Very High	Greater Than 14 times

Summary:

- Village-level information on satellite hazard categories has been submitted to the Assam State Disaster Management Authority (ASDMA) for validation.

- The field assessment reports, which correspond to the satellite-based hazard assessment, show a match of 81% with 60% falling within the same hazard category and 21% deviating by one level. This consistency suggests that most flood hazard categories for each village have been accurately evaluated using satellite-derived data and field assessments.

- However, the state underestimates flood hazards in 1.6% of villages, potentially due to the absence of comprehensive data collected over the past 25 years at the field office. This discrepancy is reflected in satellite imagery and is therefore considered a conclusive assessment based on satellite data. Additionally, 17% of villages are under-categorized in satellite-based estimations compared to field reports. This under-categorization may stem from inadequate field data or limited satellite coverage from earlier years, which may be addressed in future updates.

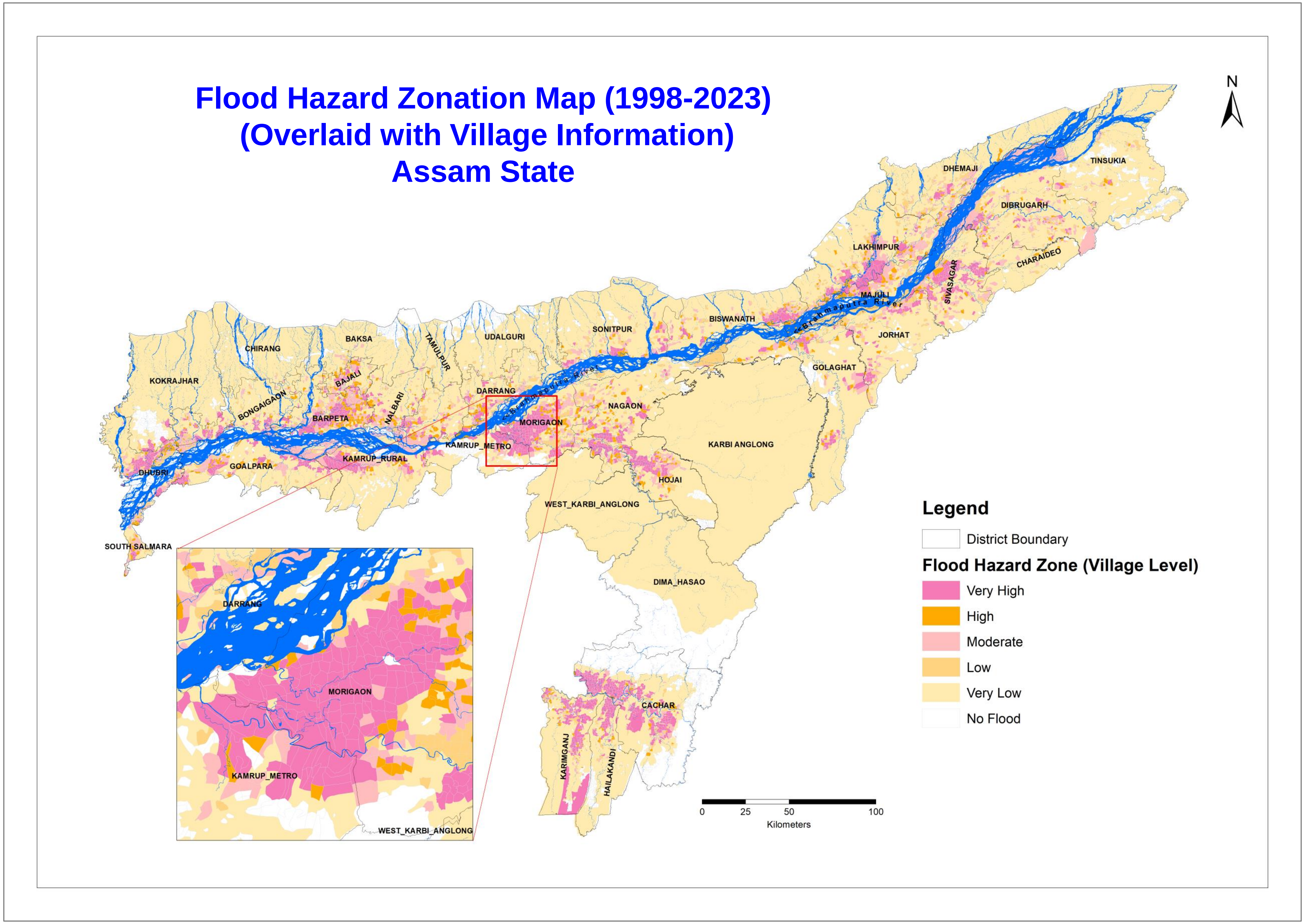

Flood Hazard Zonation Map (1998-2023)
(Overlaid with Village Information)
Assam State
N
DHEMAJI
TINSUKIA
DIBRUGARH
LAKHIMPUR
CHARAIDEO
SIVASAGAR
MAJULI
Brahmaputra River
BISWANATH
JORHAT
SONITPUR
UDALGURI
TAMULPUR
BAKSA
CHIRANG
KOKRAJHAR
BAJALI
BONGAIGAON
NALBARI
DARRANG
GOLAGHAT
NAGAON
MORIGAON
BARPETA
KAMRUP_METRO
KAMRUP_RURAL
GOALPARA
DHUBRI
KARBI ANGLONG
HOJAI
WEST_KARBI_ANGLONG
SOUTH SALMARA
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
DARRANG
MORIGAON
KAMRUP_METRO
WEST_KARBI_ANGLONG
0
25
50
100
Kilometers
Legend
District Boundary
Flood Hazard Zone (Village Level)
Very High
High
Moderate
Low
Very Low
No Flood

Figure. 5.3: Flood Hazard Zonation Map (1998-2023) (Overlaid with Village Information)

Table 5.3; District wise number of villages under each category of Hazard

District	**Very high (>14 Times)**	**High (11 - 14 Times)**	**Moderate (7-10 Times)**	**Low (4-6 Times)**	**Very Low (1-3 Times)**
Bajali	18	19	28	16	72
Baksa	1	9	21	12	311
Barpeta	129	105	87	32	160
Biswanath	47	29	44	37	184
Bongaigaon	51	20	31	19	351
Cachar	224	25	72	34	381
charaideo	4	5	24	13	262
Chirang	10	3	3	5	336
Darrang	50	23	40	44	317
Dhemaji	15	20	76	113	367
Dhubri	185	53	111	0	0
Dibrugarh	97	56	146	94	863
Dima hasao	0	0	0	0	6
Goalpara	144	64	76	33	378
Golaghat	35	37	40	31	412
Hailakandi	59	8	8	16	194
Hojai	63	21	62	24	121
Jorhat	39	13	46	35	287
Kamrup Metro	42	4	14	8	77
Kamrup rural	47	12	0	0	0
Karbi Anglong	0	0	0	0	3
Karimganj	117	34	30	46	201
Kokrajhar	21	5	8	13	203
Lakhimpur	56	63	107	92	651
Majuli	22	21	41	18	38
Morigaon	117	58	93	49	146
Nagaon	105	46	84	61	501
Nalbari	28	40	71	17	348
Sivasagar	89	7	29	18	113
Sonitpur	21	16	51	39	424
South Salmara	34	20	37	0	0
Tamulpur	0	1	2	10	243
Tinsukia	4	8	23	35	451
Udalguri	0	0	14	14	597
West Karbi Anglong	0	0	0	0	3

Table 5.4; District wise Flood Hazard ranking index

District	Area of the district	Hazard Zones	Weightage For Hazard Zones (H)	Area Submerged (hectares)	% of Area Submerged	Weightage for % of area Submerged (A)	(H x A)	Hazard Index ∑ H x A	Gauge Station	No. of Peaks	Weightage For Annual Flood Wave Index (F)	(∑ H x A) x F	Flood Hazard Ranking Index
Bajali	38920	Very High	5	3525	9.06	1	5	26			1	26	II
		High	4	5358	13.77	2	8						
		Moderate	3	6896	17.72	2	6						
		Low	2	6486	16.66	2	4						
		Very Low	1	9017	23.17	3	3						
Baksa	154372	Very High	5	699	0.45	1	5	16			1	16	III
		High	4	2355	1.53	1	4						
		Moderate	3	6316	4.09	1	3						
		Low	2	9931	6.43	1	2						
		Very Low	1	29948	19.40	2	2						
Barpeta	189564	Very High	5	18379	9.70	1	5	19	NH R.d xing (Manas)	25	3	57	I
		High	4	18451	9.73	1	4						
		Moderate	3	22666	11.96	2	6		R.d Bridge (Beki)	96	3		
		Low	2	17624	9.30	1	2						
		Very Low	1	23928	12.62	2	2						
Biswanath	213982	Very High	5	10870	5.08	1	5	16			1	16	III
		High	4	10749	5.02	1	4						
		Moderate	3	14725	6.88	1	3						
		Low	2	16564	7.74	1	2						
		Very Low	1	36406	17.01	2	2						
Bongaigaon	114633	Very High	5	3015	2.63	1	5	16			1	16	III
		High	4	3439	3.00	1	4						
		Moderate	3	6077	5.30	1	3						
		Low	2	8509	7.42	1	2						
		Very Low	1	20980	18.30	2	2						
Cachar	378209	Very High	5	34902	9.23	1	5	15	A.P. Ghat	23	3	45	I
		High	4	13251	3.50	1	4						
		Moderate	3	17056	4.51	1	3		B.P. Ghat				
		Low	2	16905	4.47	1	2						
		Very Low	1	34477	9.12	1	1						
Charaideo	105005	Very High	5	1209	1.15	1	5	19			1	19	III
		High	4	3610	3.44	1	4						
		Moderate	3	8033	7.65	1	3						
		Low	2	10515	10.01	2	4						
		Very Low	1	23722	22.59	3	3						
Chirang	185215	Very High	5	6	0.00	1	5	15			1	15	III
		High	4	159	0.09	1	4						
		Moderate	3	1214	0.66	1	3						
		Low	2	3344	1.81	1	2						
		Very Low	1	18123	9.78	1	1						
Darrang	154006	Very High	5	6111	3.97	1	5	18			1	18	III
		High	4	8476	5.50	1	4						
		Moderate	3	14318	9.30	1	3						
		Low	2	16591	10.77	2	4						
		Very Low	1	28269	18.36	2	2						
Dhemaji	255768	Very High	5	4164	1.63	1	5	22	NH-52 RCC Bridge		1	22	II
		High	4	9824	3.84	1	4						
		Moderate	3	26664	10.43	2	6		CH.6400m				
		Low	2	36918	14.43	2	4						
		Very Low	1	65246	25.51	3	3						
Dhubri	176122	Very High	5	13137	7.46	1	5	16	Dhubri	63	3	48	I
		High	4	10817	6.14	1	4						
		Moderate	3	16137	9.16	1	3						
		Low	2	15521	8.81	1	2		Golokganj	38	3		
		Very Low	1	25646	14.56	2	2						
Dibrugarh	339723	Very High	5	10821	3.19	1	5	16	Dibrugarh	116	3	48	I
		High	4	14074	4.14	1	4						
		Moderate	3	27626	8.13	1	3		Naharkatia	2	1		
		Low	2	31334	9.22	1	2		Khowang	53	3		
		Very Low	1	65880	19.39	2	2						

District	Area of the district	Hazard Zones	Weightage For Hazard Zones(H)	Area Submerged (hectares)	% of Area Submerged	Weightage for % of area Submerged (A)	(H x A)	Hazard Index ∑ H x A	Gauge Station	No. of Peaks	Weightage For Annual Flood Wave Index (F)	(∑ H x A) x F	Flood Hazard Ranking Index
Dima Hasao	487315	Very High	5	0	0.00	1	5	15			1	15	III
		High	4	0	0.00	1	4						
		Moderate	3	0	0.00	1	3						
		Low	2	0	0.00	1	2						
		Very Low	1	28	0.01	1	1						
Goalpara	201313	Very High	5	12779	6.35	1	5	15	Goalpara	31	3	45	I
		High	4	10018	4.98	1	4						
		Moderate	3	15545	7.72	1	3						
		Low	2	15682	7.79	1	2						
		Very Low	1	31689	15.74	1	1						
Golaghat	327201	Very High	5	11005	3.36	1	5	17	Golaghat	39	3	51	I
		High	4	13927	4.26	1	4						
		Moderate	3	21518	6.58	1	3						
		Low	2	25431	7.77	1	2						
		Very Low	1	68035	20.79	3	3						
Hailakandi	132958	Very High	5	6709	5.05	1	5	16	Matizuri	54	3	48	I
		High	4	4240	3.19	1	4						
		Moderate	3	5548	4.17	1	3						
		Low	2	7419	5.58	1	2						
		Very Low	1	18657	14.03	2	2						
Hojai	145491	Very High	5	11345	7.80	1	5	21			1	21	II
		High	4	11160	7.67	1	4						
		Moderate	3	15054	10.35	2	6						
		Low	2	15329	10.54	2	4						
		Very Low	1	22169	15.24	2	2						
Jorhat	190628	Very High	5	8232	4.32	1	5	18	Neamatighat	133	3	54	I
		High	4	8971	4.71	1	4						
		Moderate	3	16783	8.80	1	3						
		Low	2	20899	10.96	2	4						
		Very Low	1	37933	19.90	2	2						
Kamrup Metro	102743	Very High	5	8186	7.97	1	5	15	Guwahati D.C. Court	36	3	45	I
		High	4	3018	2.94	1	4						
		Moderate	3	3293	3.21	1	3						
		Low	2	2849	2.77	1	2						
		Very Low	1	4479	4.36	1	1						
Kamrup Rural	306425	Very High	5	18406	6.01	1	5	16	N.H.Rd xing (Puthimari)	81	3	48	I
		High	4	17419	5.68	1	4						
		Moderate	3	29369	9.58	1	3						
		Low	2	28533	9.31	1	2						
		Very Low	1	44127	14.40	2	2						
Karbi Anglong	730630	Very High	5	4148	0.57	1	5	15			1	15	III
		High	4	7037	0.96	1	4						
		Moderate	3	9356	1.28	1	3						
		Low	2	8728	1.19	1	2						
		Very Low	1	16381	2.24	1	1						
Karimganj	185925	Very High	5	18208	9.79	1	5	16	Karimganj	58	3	48	I
		High	4	7905	4.25	1	4						
		Moderate	3	9788	5.26	1	3						
		Low	2	11095	5.97	1	2						
		Very Low	1	28380	15.26	2	2						
Kokrajhar	318735	Very High	5	2562	0.80	1	5	16	Kokrajhar		1	16	III
		High	4	1515	0.48	1	4						
		Moderate	3	3431	1.08	1	3						
		Low	2	8363	2.62	1	2						
		Very Low	1	38308	12.02	2	2						
Lakhimpur	289443	Very High	5	20651	7.13	1	5	22	Badatighat	11	2	44	I
		High	4	20303	7.01	1	4						
		Moderate	3	31047	10.73	2	6		Chouldhowa ghat	0			
		Low	2	34261	11.84	2	4						
		Very Low	1	73729	25.47	3	3						
Majuli	117306	Very High	5	3646	3.11	1	5	18			1	18	III
		High	4	6956	5.93	1	4						
		Moderate	3	13060	11.13	2	6						
		Low	2	11287	9.62	1	2						
		Very Low	1	10398	8.86	1	1						

District	Area of the district	Hazard Zones	Weightage For Hazard Zones(H)	Area Submerged (hectares)	% of Area Submerged	Weightage for % of area Submerged (A)	(H x A)	Hazard Index ∑ H x A	Gauge Station	No. of Peaks	Weightage For Annual Flood Wave Index (F)	(∑ H x A) x F	Flood Hazard Ranking Index
Morigaon	145466	Very High	5	25529	22.77	3	15	35	Dharamtul	26	3	105	**I**
		High	4	19612	10.96	2	8						
		Moderate	3	28079	13.14	2	6						
		Low	2	32615	10.80	2	4						
		Very Low	1	57893	12.93	2	2						
Nagaon	257524	Very High	5	25529	9.91	1	5	22	Kampur	42	3	66	**I**
		High	4	19612	7.62	1	4						
		Moderate	3	28079	10.90	2	6						
		Low	2	32615	12.66	2	4						
		Very Low	1	57893	22.48	3	3						
Nalbari	107847	Very High	5	3953	3.67	1	5	22	N.T.Rd.xing - Pagaladiya	28	3	66	**I**
		High	4	7096	6.58	1	4						
		Moderate	3	14039	13.02	2	6						
		Low	2	14372	13.33	2	4						
		Very Low	1	26560	24.63	3	3						
Sivasagar	155176	Very High	5	20505	13.21	2	10	27	Sibsagar	67	3	81	**I**
		High	4	13620	8.78	1	4						
		Moderate	3	20422	13.16	2	6		Nanglamor ghat	83	3		
		Low	2	20226	13.03	2	4						
		Very Low	1	32362	20.85	3	3						
Sonitpur	311710	Very High	5	7302	2.34	1	5	16	Tejpur	63	3	48	**I**
		High	4	8647	2.77	1	4						
		Moderate	3	17136	5.50	1	3		N.T.RD Xing	77	3		
		Low	2	23505	7.54	1	2						
		Very Low	1	48671	15.61	2	2						
South Salmara	33648	Very High	5	1691	5.03	1	5	25			1	25	**II**
		High	4	3732	11.09	2	8						
		Moderate	3	5616	16.69	2	6						
		Low	2	4988	14.82	2	4						
		Very Low	1	5057	15.03	2	2						
Tamulpur	96803	Very High	5	4	0.00	1	5	17			1	17	**III**
		High	4	351	0.36	1	4						
		Moderate	3	2671	2.76	1	3						
		Low	2	7027	7.26	1	2						
		Very Low	1	20243	20.91	3	3						
Tinsukia	383365	Very High	5	1128	0.29	1	5	17	Dolabazar	2	1	17	**III**
		High	4	2180	0.57	1	4						
		Moderate	3	8202	2.14	1	3						
		Low	2	17327	4.52	1	2						
		Very Low	1	58798	15.34	3	3						
Udalguri	202807	Very High	5	198	0.10	1	5	17			1	17	**III**
		High	4	1672	0.82	1	4						
		Moderate	3	6281	3.10	1	3						
		Low	2	13387	6.60	1	2						
		Very Low	1	42181	20.80	3	3						
West karbi anglong	312792	Very High	5	381	0.12	1	5	15			1	15	**III**
		High	4	1010	0.32	1	4						
		Moderate	3	2692	0.86	1	3						
		Low	2	3623	1.16	1	2						
		Very Low	1	9722	3.11	1	1						

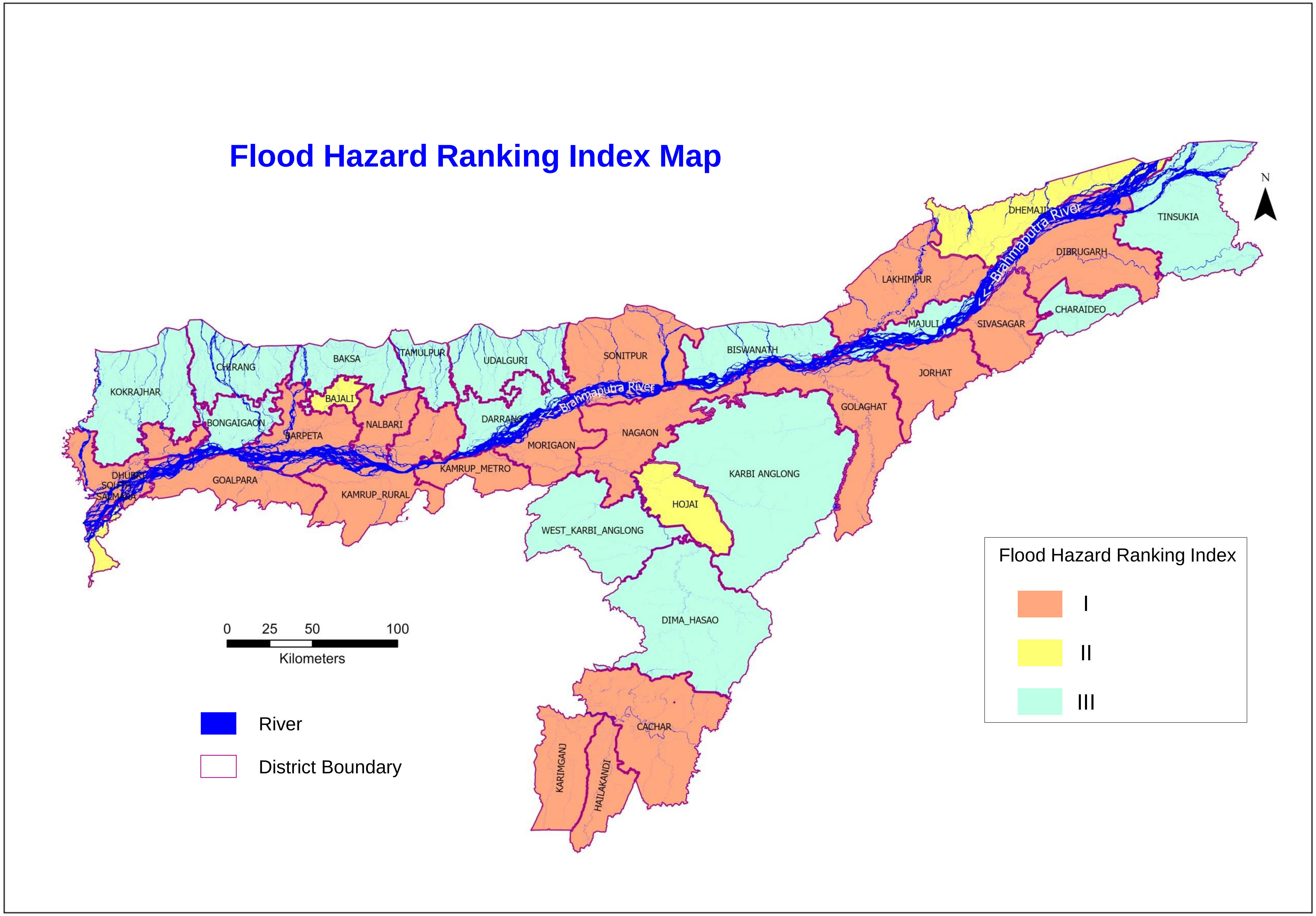

Flood Hazard Ranking Index Map
N
DHEMAJI
TINSUKIA
Brahmaputra River
DIBRUGARH
LAKHIMPUR
CHARAIDEO
MAJULI
SIVASAGAR
BISWANATH
SONITPUR
JORHAT
BAKSA
TAMULPUR
UDALGURI
CHIRANG
KOKRAJHAR
BAJALI
Brahmaputra River
BONGAIGAON
NALBARI
DARRANG
GOLAGHAT
BARPETA
NAGAON
MORIGAON
KAMRUP_METRO
DHUBRI
SOUTH SALMARA
GOALPARA
KAMRUP_RURAL
KARBI ANGLONG
HOJAI
WEST_KARBI_ANGLONG
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
0
25
50
100
Kilometers
River
District Boundary
Flood Hazard Ranking Index
I
II
III

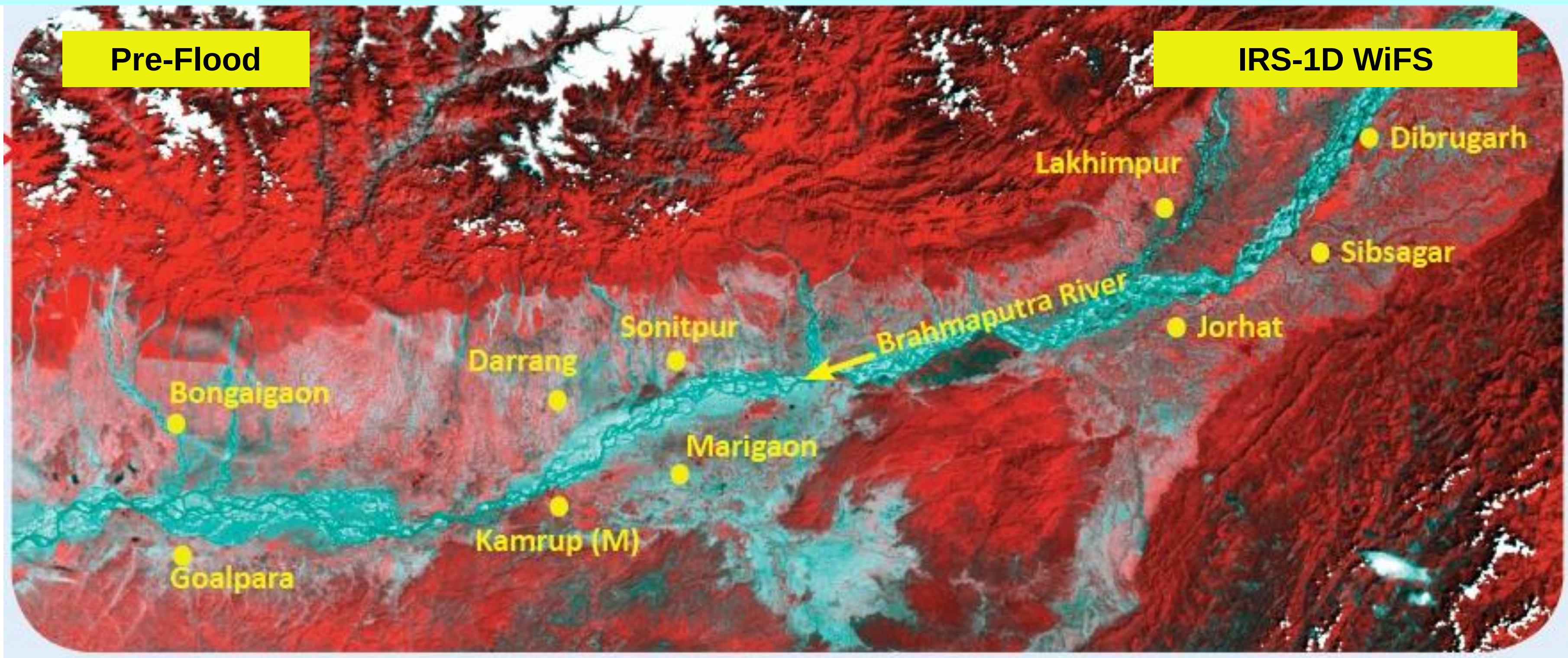
Table 5.5; District wise Flood affected crop area

S.No	DISTRICT	Flood Affected Crop Area	Very Low	%	Low	%	Moderate	%	High	%	Very high	%	Total Area	%
1	BAJALI	20787	4579	22.03	3984	19.17	4937	23.75	4272	20.55	3015	14.50	38920	53.41
2	BAKSA	33774	19113	56.59	7125	21.10	4927	14.59	1984	5.87	626	1.85	154372	21.88
3	BARPETA	71571	13989	19.55	11874	16.59	16185	22.61	14271	19.94	15253	21.31	189564	37.76
4	BISWANATH	61414	24478	39.86	11539	18.79	10603	17.26	8128	13.23	6666	10.85	213982	28.70
5	BONGAIGAON	26819	12204	45.51	5845	21.79	4258	15.88	2467	9.20	2045	7.63	114633	23.40
6	CACHAR	76545	18588	24.28	10929	14.28	12004	15.68	10065	13.15	24959	32.61	378209	20.24
7	CHARAIDEO	31731	14338	45.18	7242	22.82	5944	18.73	3083	9.72	1126	3.55	105005	30.22
8	CHIRANG	16428	12397	75.46	2772	16.87	1102	6.70	152	0.93	6	0.03	185215	8.87
9	DARRANG	54604	18164	33.26	12324	22.57	11366	20.82	7231	13.24	5519	10.11	154006	35.46
10	DHEMAJI	104462	44701	42.79	27301	26.13	20486	19.61	8363	8.01	3611	3.46	255768	40.84
11	DHUBRI	56258	15614	27.75	10514	18.69	11631	20.67	8061	14.33	10439	18.56	176122	31.94
12	DIBRUGARH	87574	34888	39.84	18167	20.74	16337	18.65	9630	11.00	8553	9.77	339723	25.78
13	DIMA_HASAO	28	28	100.00	0	0.00	0	0.00	0	0.00	0	0.00	487315	0.01
14	GOALPARA	55863	15922	28.50	10636	19.04	11539	20.65	7793	13.95	9974	17.85	201313	27.75
15	GOLAGHAT	80004	33702	42.13	13812	17.26	13741	17.18	9986	12.48	8763	10.95	327201	24.45
16	HAILAKANDI	26279	9000	34.25	5026	19.12	4088	15.56	3242	12.34	4924	18.74	132958	19.77
17	HOJAI	55763	14017	25.14	10503	18.84	11376	20.40	9365	16.79	10501	18.83	145491	38.33
18	JORHAT	57992	22073	38.06	12813	22.09	10893	18.78	6178	10.65	6035	10.41	190628	30.42
19	KAMRUP METRO	14875	2332	15.67	1801	12.10	2184	14.68	2175	14.62	6384	42.92	102743	14.48
20	KAMRUP RURAL	94376	24196	25.64	19690	20.86	22073	23.39	13998	14.83	14420	15.28	306425	30.80
21	KARBI ANGLONG	35204	10376	29.47	6621	18.81	7730	21.96	6456	18.34	4022	11.42	730630	4.82
22	KARIMGANJ	46124	12031	26.08	6752	14.64	6757	14.65	5576	12.09	15009	32.54	185925	24.81
23	KOKRAJHAR	40177	27887	69.41	6377	15.87	2546	6.34	1100	2.74	2268	5.64	318735	12.61
24	LAKHIMPUR	128039	44961	35.12	23879	18.65	23613	18.44	17001	13.28	18586	14.52	289443	44.24
25	MAJULI	27815	4956	17.82	6343	22.80	8332	29.96	5389	19.37	2796	10.05	117306	23.71
26	MORIGAON	77357	10473	13.54	10549	13.64	14428	18.65	13214	17.08	28693	37.09	145466	53.18
27	NAGAON	106804	33582	31.44	21661	20.28	20039	18.76	14275	13.37	17248	16.15	257524	41.47
28	NALBARI	45336	15728	34.69	9924	21.89	10623	23.43	5721	12.62	3340	7.37	107847	42.04
29	SIVASAGAR	66991	17443	26.04	12081	18.03	13159	19.64	9073	13.54	15236	22.74	155176	43.17
30	SONITPUR	71848	30100	41.89	16922	23.55	13193	18.36	6677	9.29	4956	6.90	311710	23.05
31	SOUTH SALMARA	15276	3009	19.70	3393	22.21	4311	28.22	3088	20.21	1476	9.66	33648	45.40
32	TAMULPUR	21114	13255	62.78	5320	25.19	2221	10.52	315	1.49	4	0.02	96803	21.81
33	TINSUKIA	53179	35409	66.58	9965	18.74	4720	8.87	1983	3.73	1102	2.07	383365	13.87
34	UDALGURI	47214	29817	63.15	10532	22.31	5205	11.02	1476	3.13	185	0.39	202807	23.28
35	WEST KARBI ANGLONG	13135	6614	50.35	2822	21.48	2402	18.29	950	7.23	348	2.65	312792	4.20

Glimpses of satellite images during flood scenario

(1998-2023)

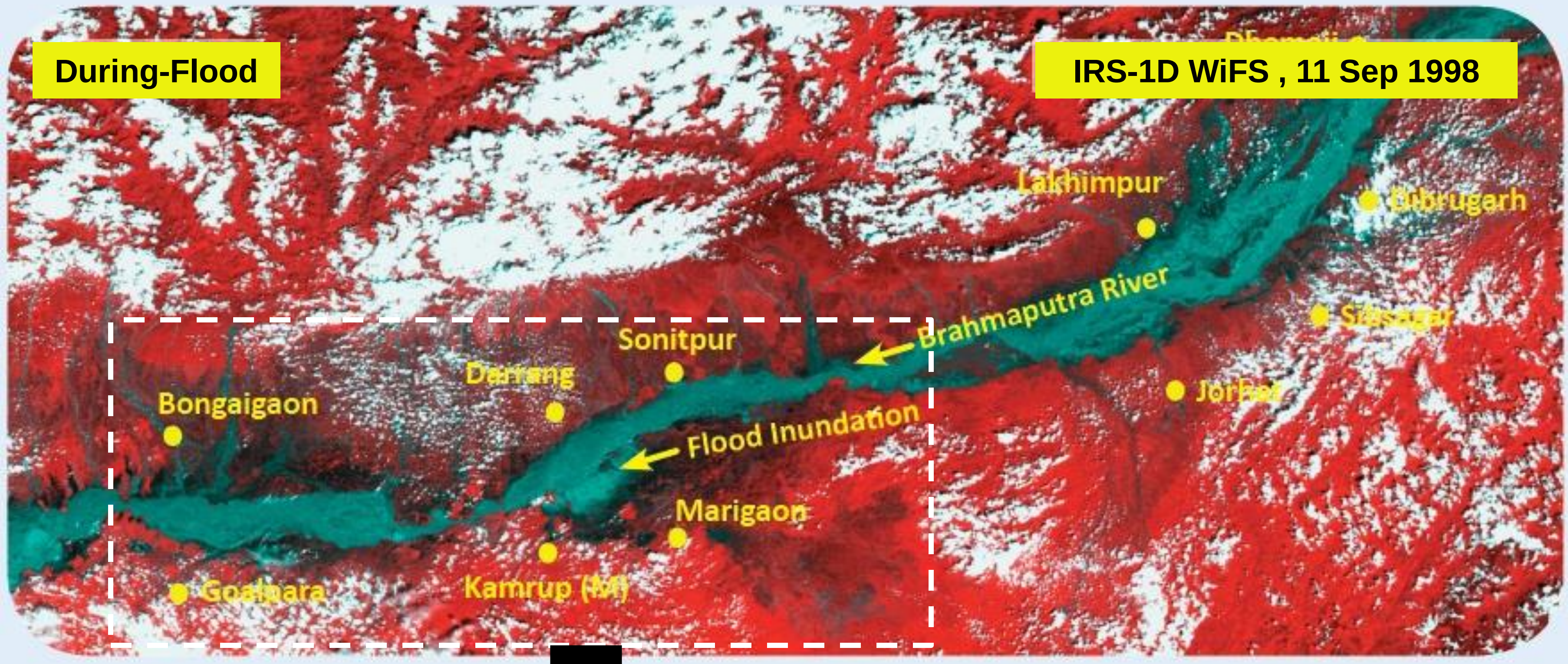
Floods-1998



Pre-Flood

IRS-1D WiFS

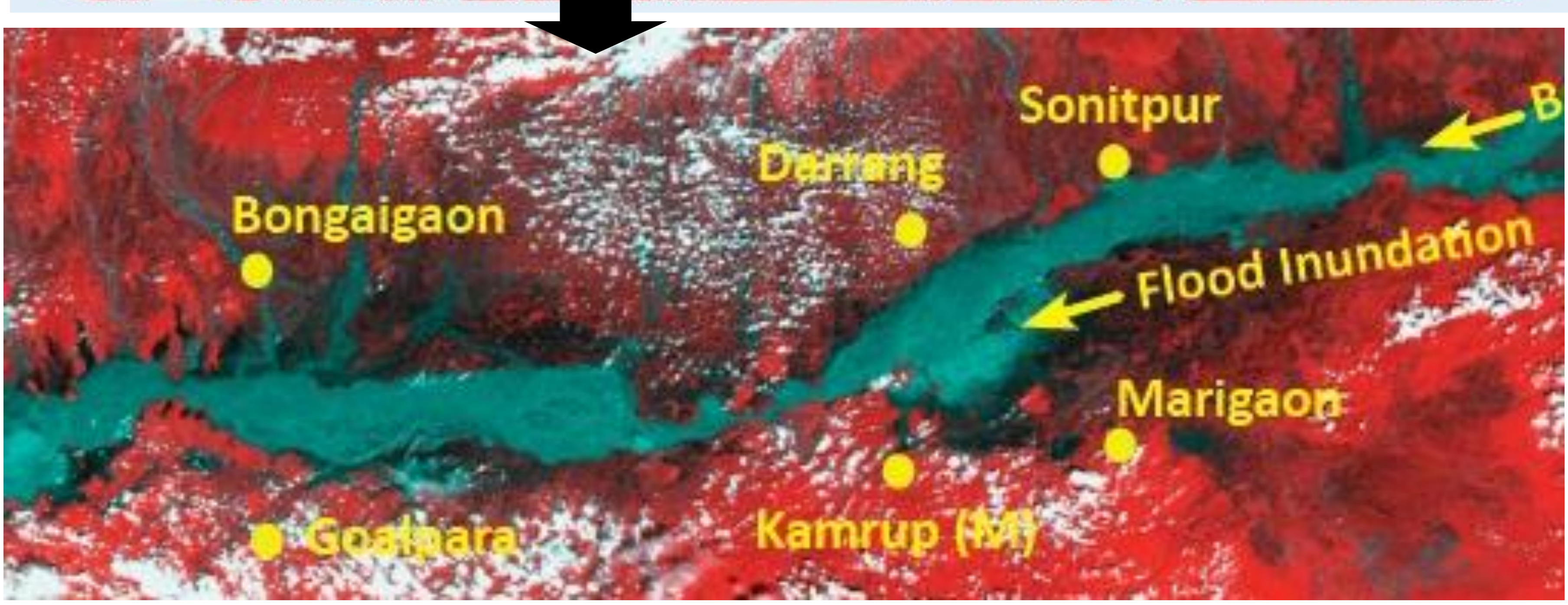
Dibrugarh
Lakhimpur
Sibsagar
Brahmaputra River
Jorhat
Sonitpur
Darrang
Bongaigaon
Marigaon
Kamrup (M)
Goalpara



During-Flood

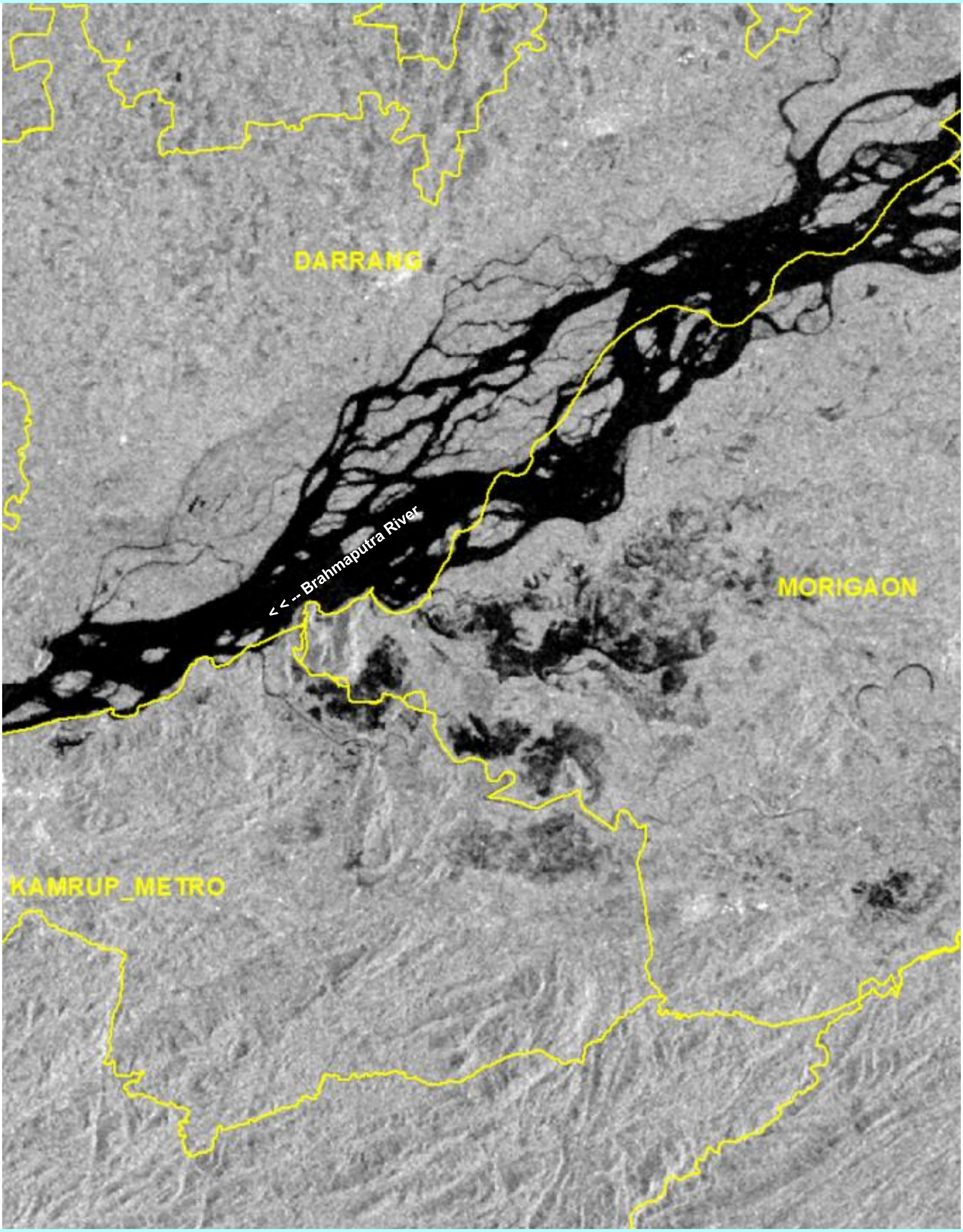
IRS-1D WiFS , 11 Sep 1998

Lakhimpur
Dibrugarh
Brahmaputra River
Sibsagar
Sonitpur
Darrang
Jorhat
Bongaigaon
Flood Inundation
Marigaon
Goalpara
Kamrup (M)



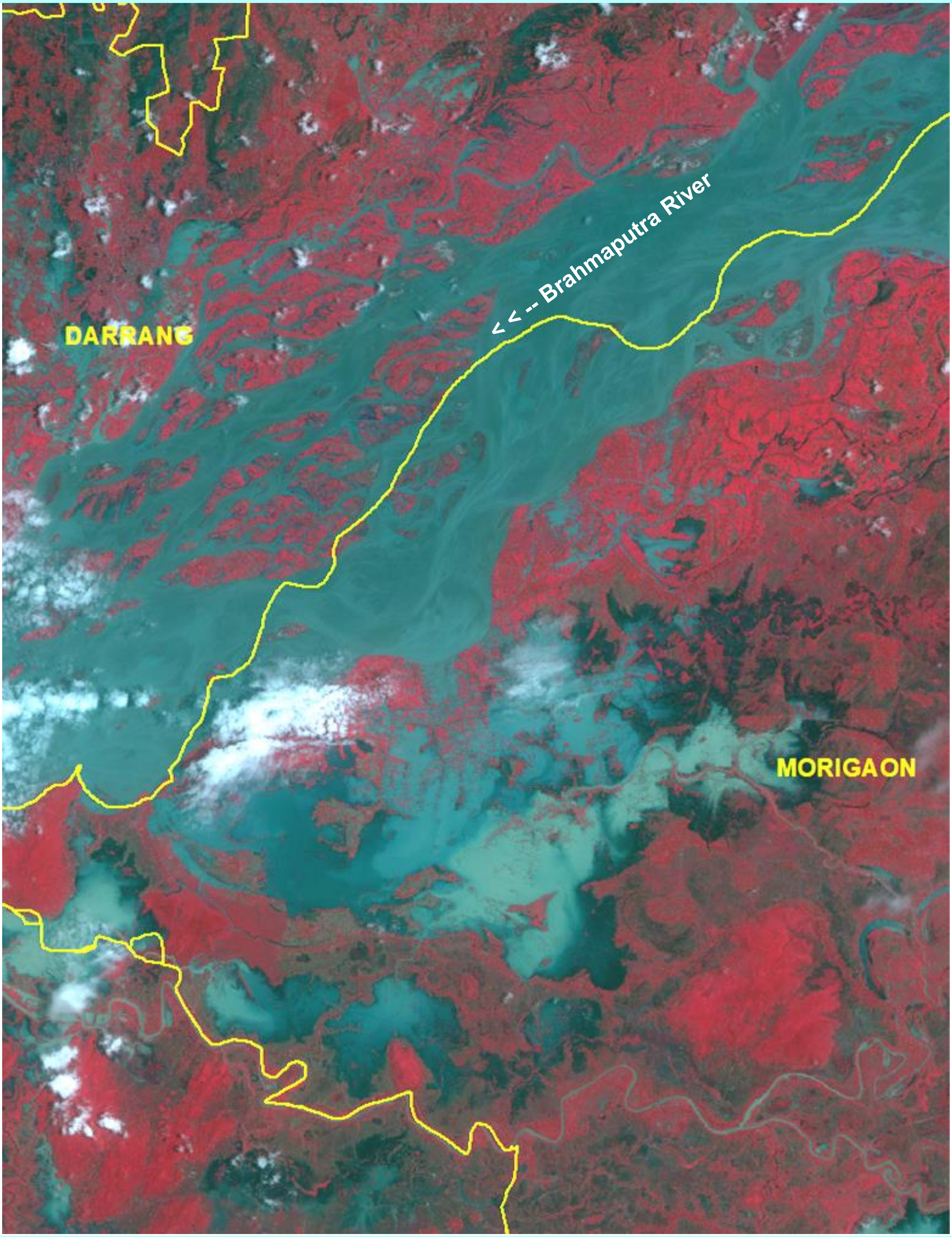
Sonitpur
Darrang
Bongaigaon
Flood Inundation
Marigaon
Goalpara
Kamrup (M)

Floods-2006


DARRANG
<< -- Brahmaputra River
MORIGAON
KAMRUP_METRO

RADARSAT, 28 July 2006

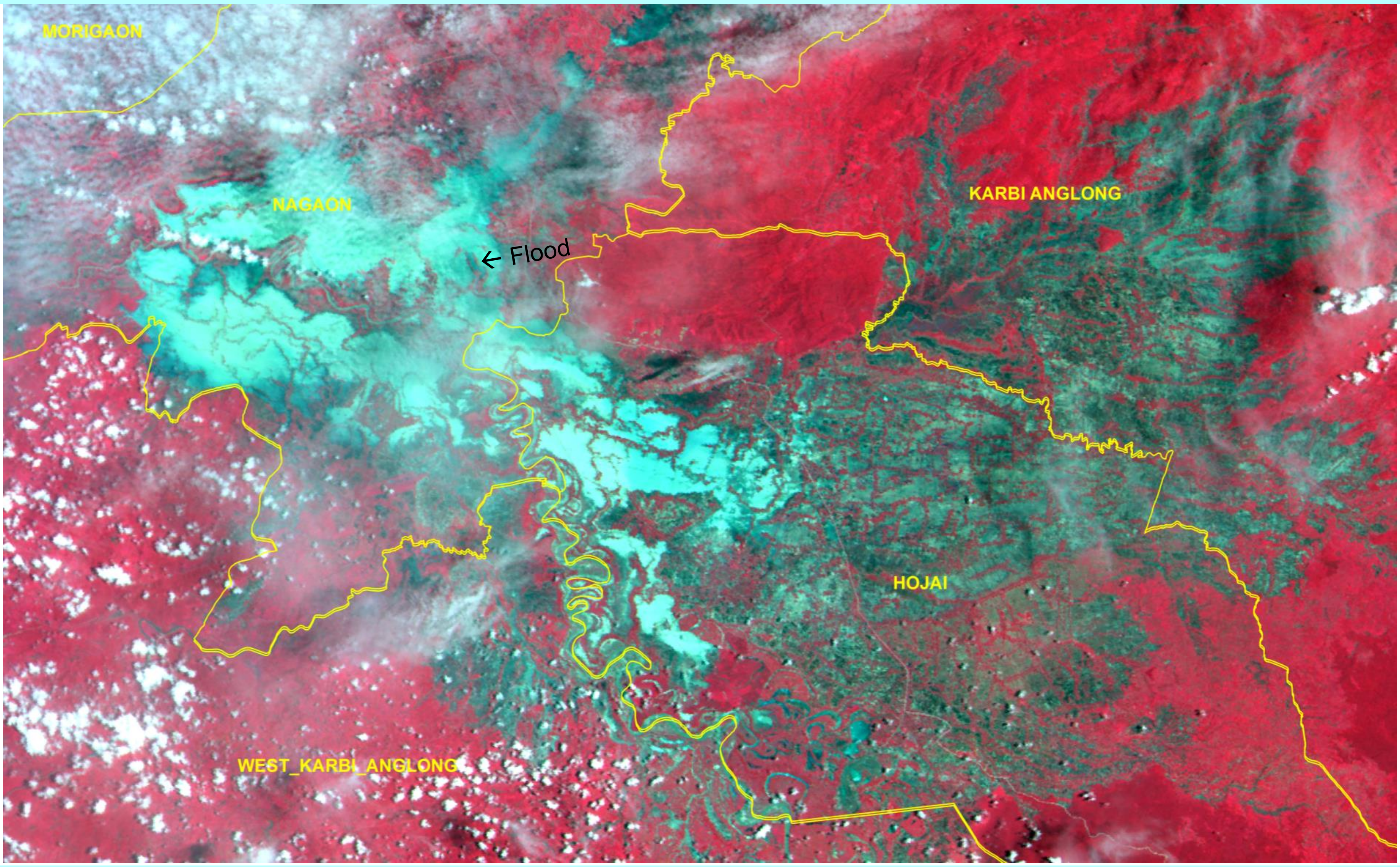
Floods-2006



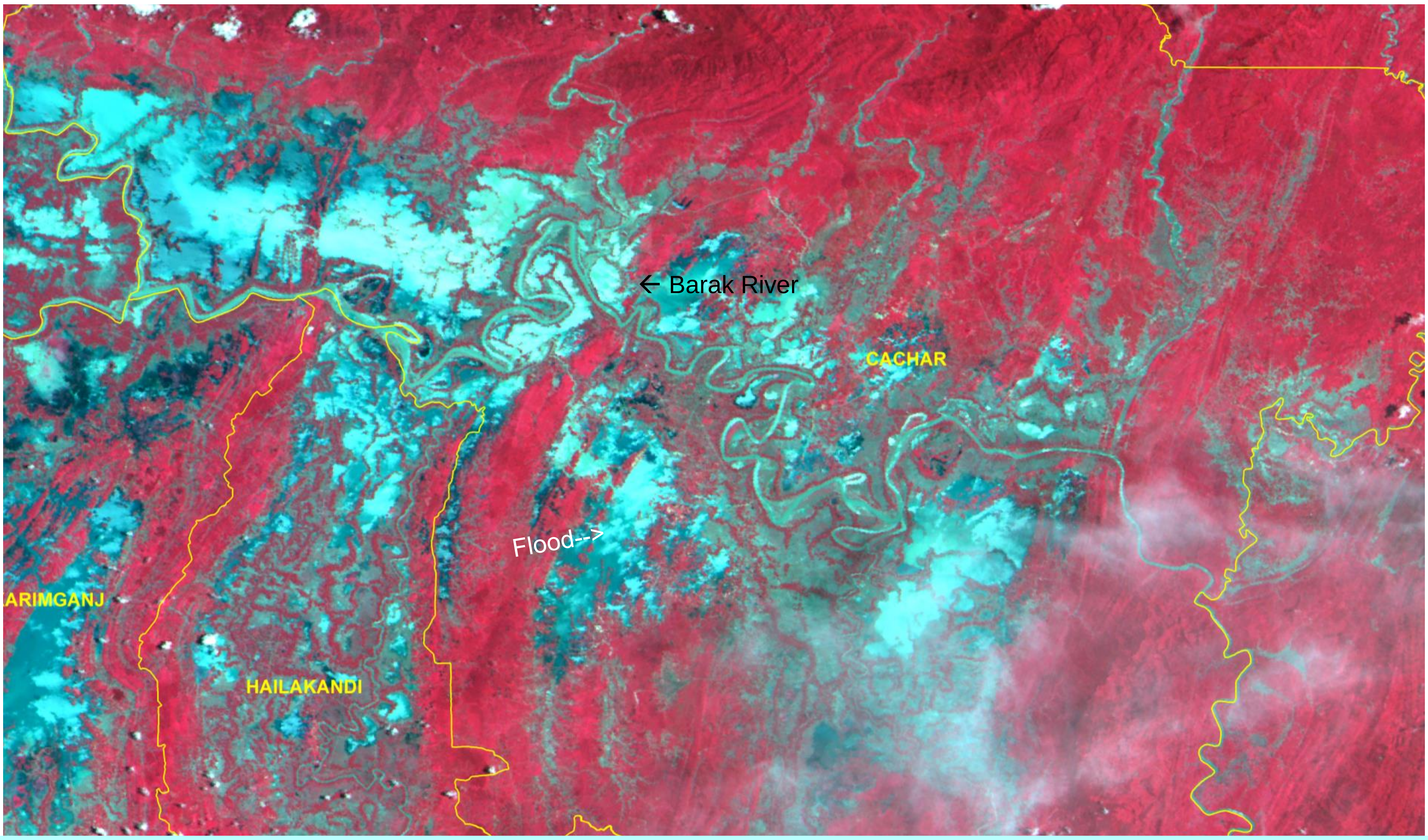
DARRANG
<< -- Brahmaputra River
MORIGAON

LISS-IV ; 15 June 2006

Floods-2012

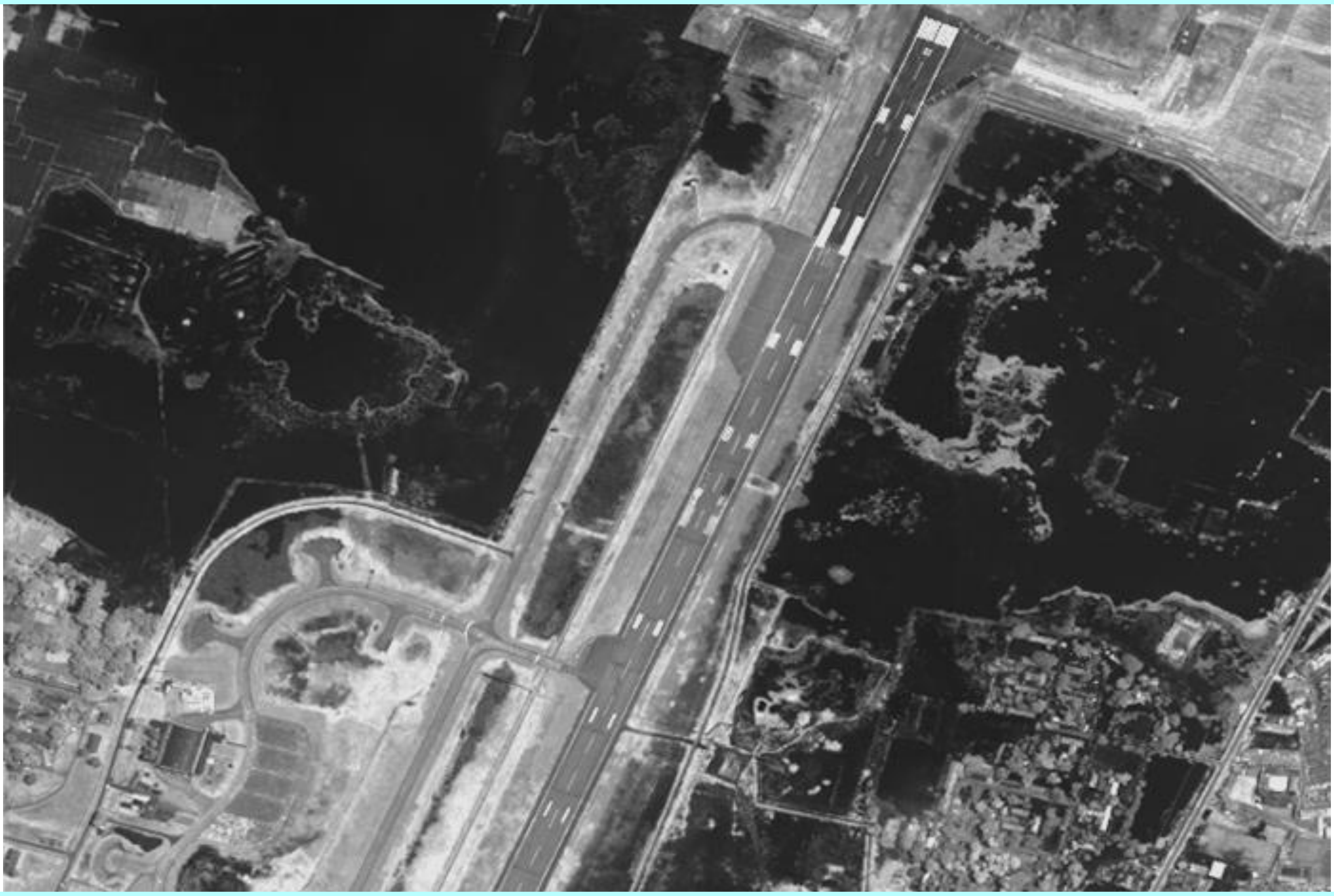

MORIGAON
NAGAON
← Flood
KARBI ANGLONG
HOJAI
WEST_KARBI_ANGLONG

IRS-P6 AWiFS, 1 Jul 2012

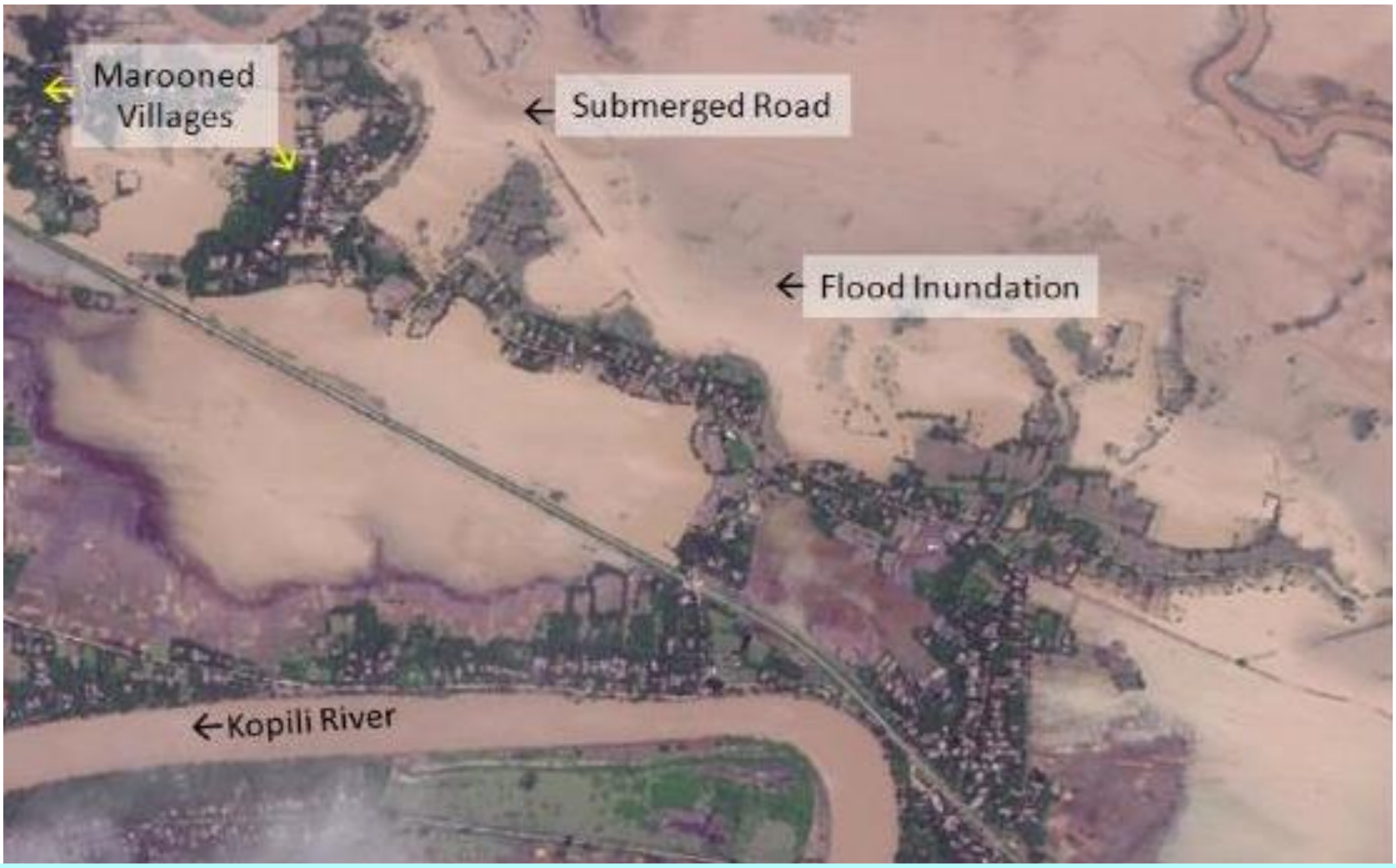

← Barak River
CACHAR
Flood-->
ARIMGANJ
HAILAKANDI

IRS-P6 AWiFS, 1 Jul 2012

Floods-2012

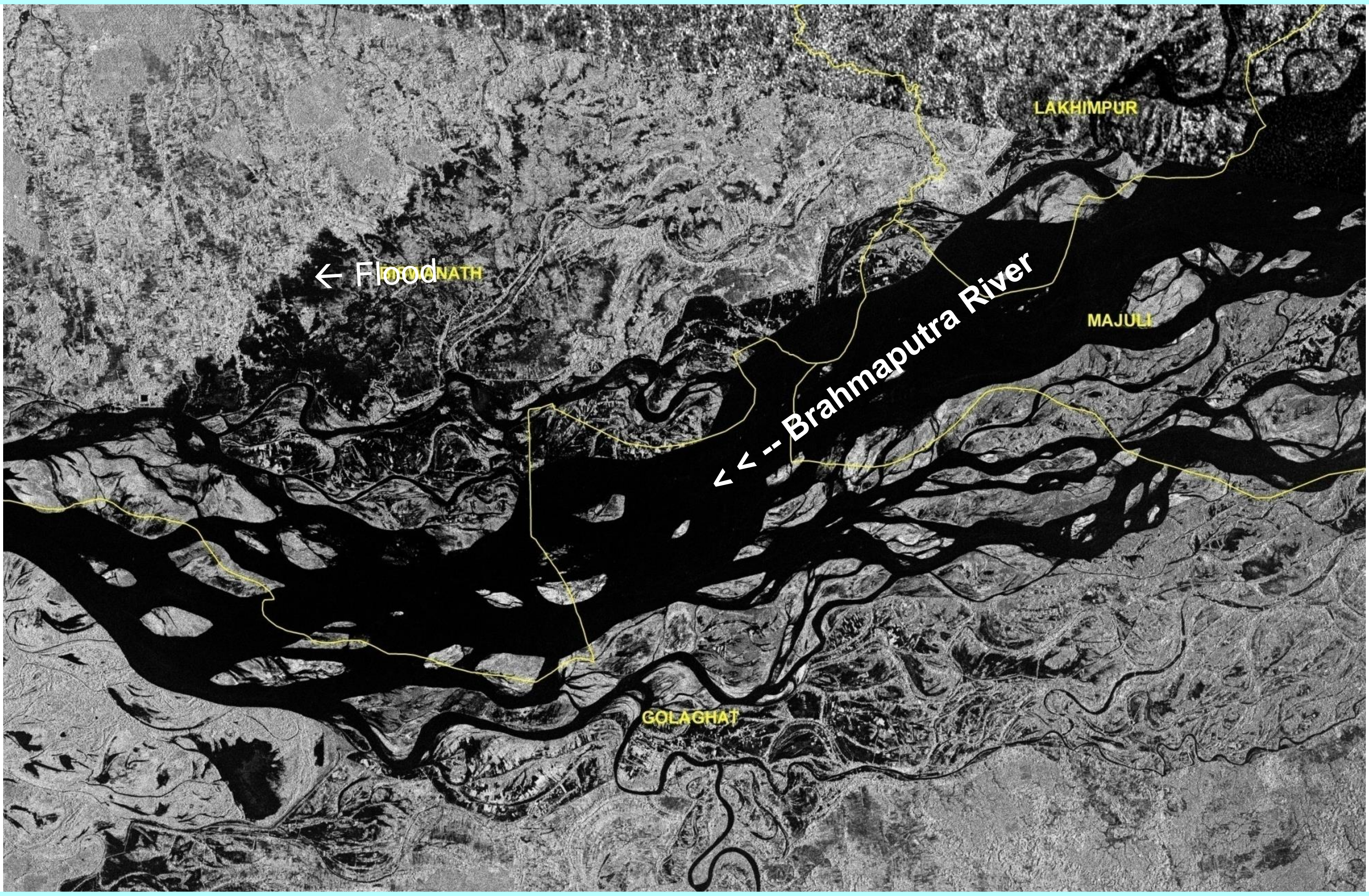


QUICKBIRD, 29 Jun 2012

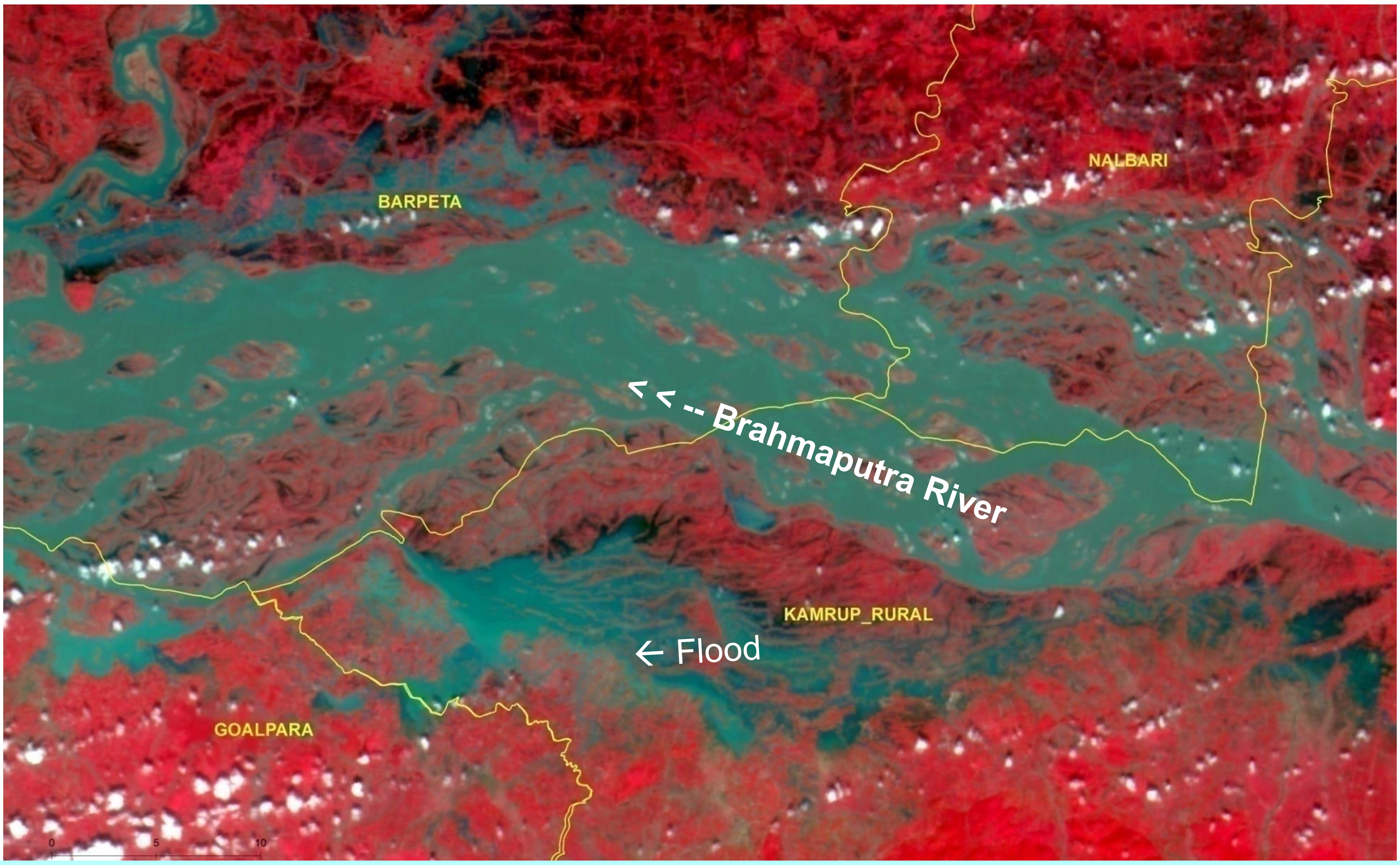

Marooned Villages
Submerged Road
Flood Inundation
Kopili River

GEOEYE-1, 05 Jul 2012

Floods-2014

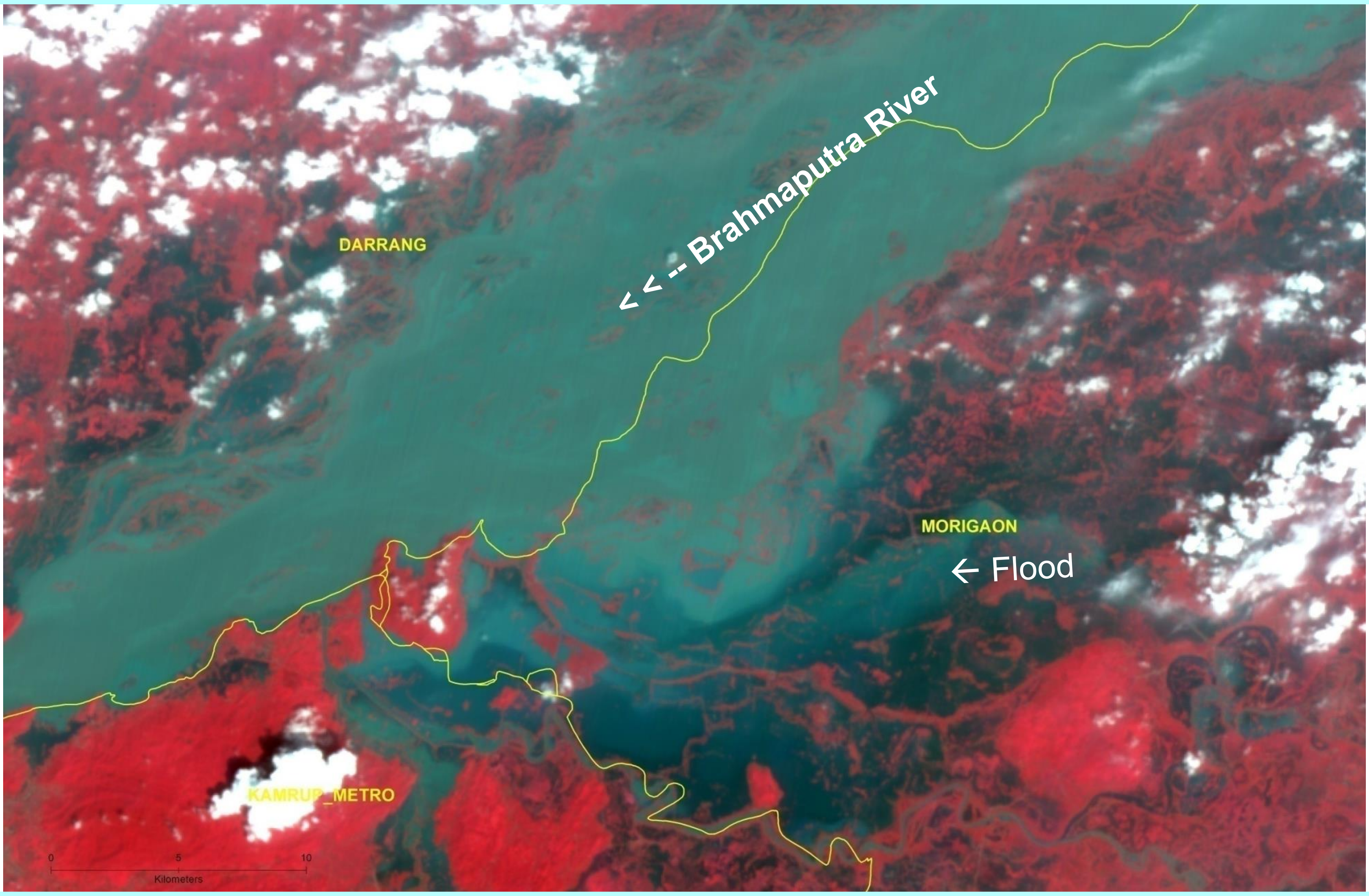

LAKHIMPUR
← Flood
BISWANATH
MAJULI
< < -- Brahmaputra River
GOLAGHAT

Radarsat-2, 22 Aug 2014

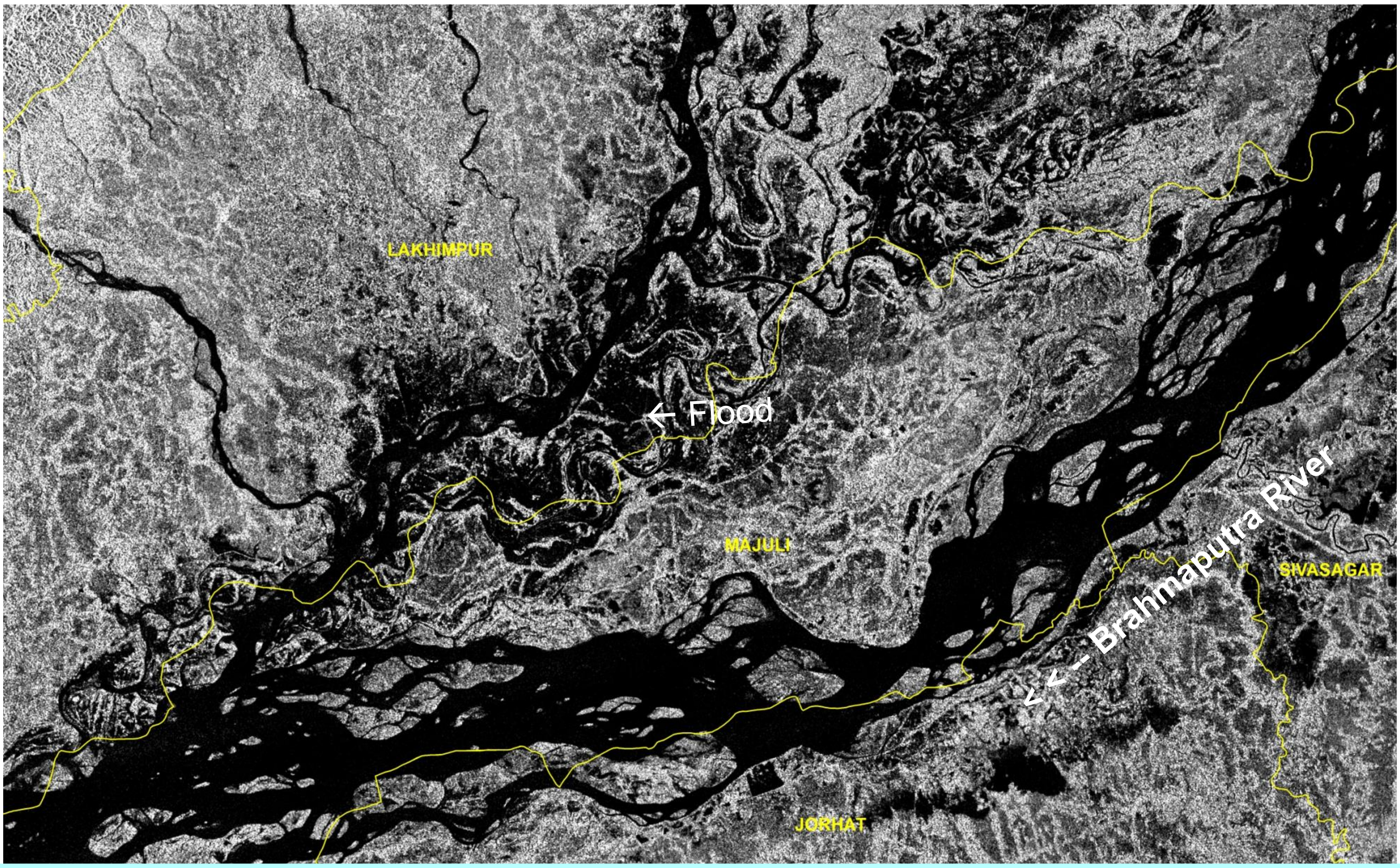

NALBARI
BARPETA
< < -- Brahmaputra River
KAMRUP_RURAL
← Flood
GOALPARA
0
5
10

IRS-P6, 30 Sep 2014

Floods-2015

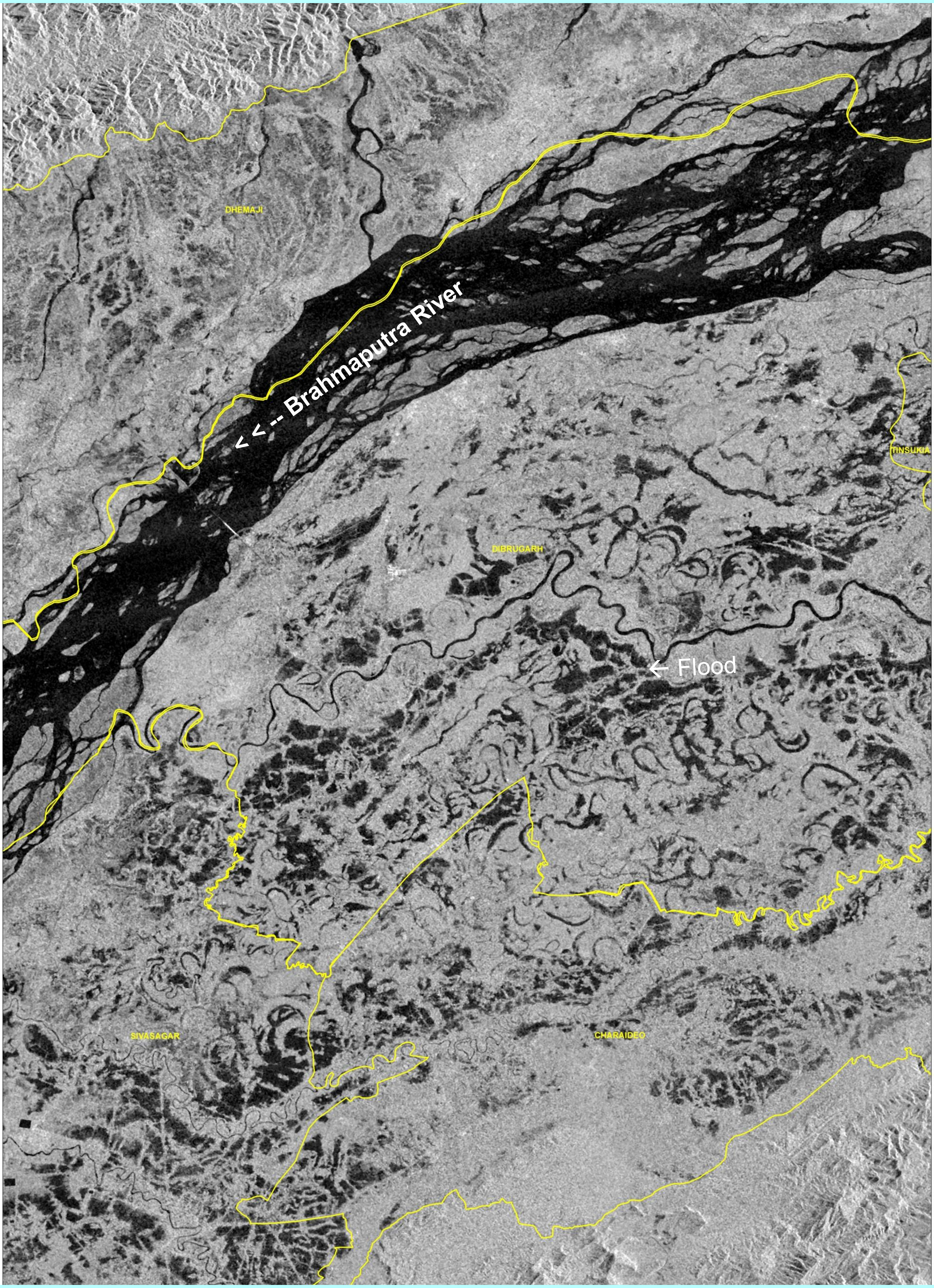

< < -- Brahmaputra River
DARRANG
MORIGAON
← Flood
KAMRUP_METRO
0
5
10
Kilometers

Resourcesat-2 AWiFS, 8 Sep 2015


LAKHIMPUR
← Flood
MAJULI
SIVASAGAR
< < -- Brahmaputra River
JORHAT

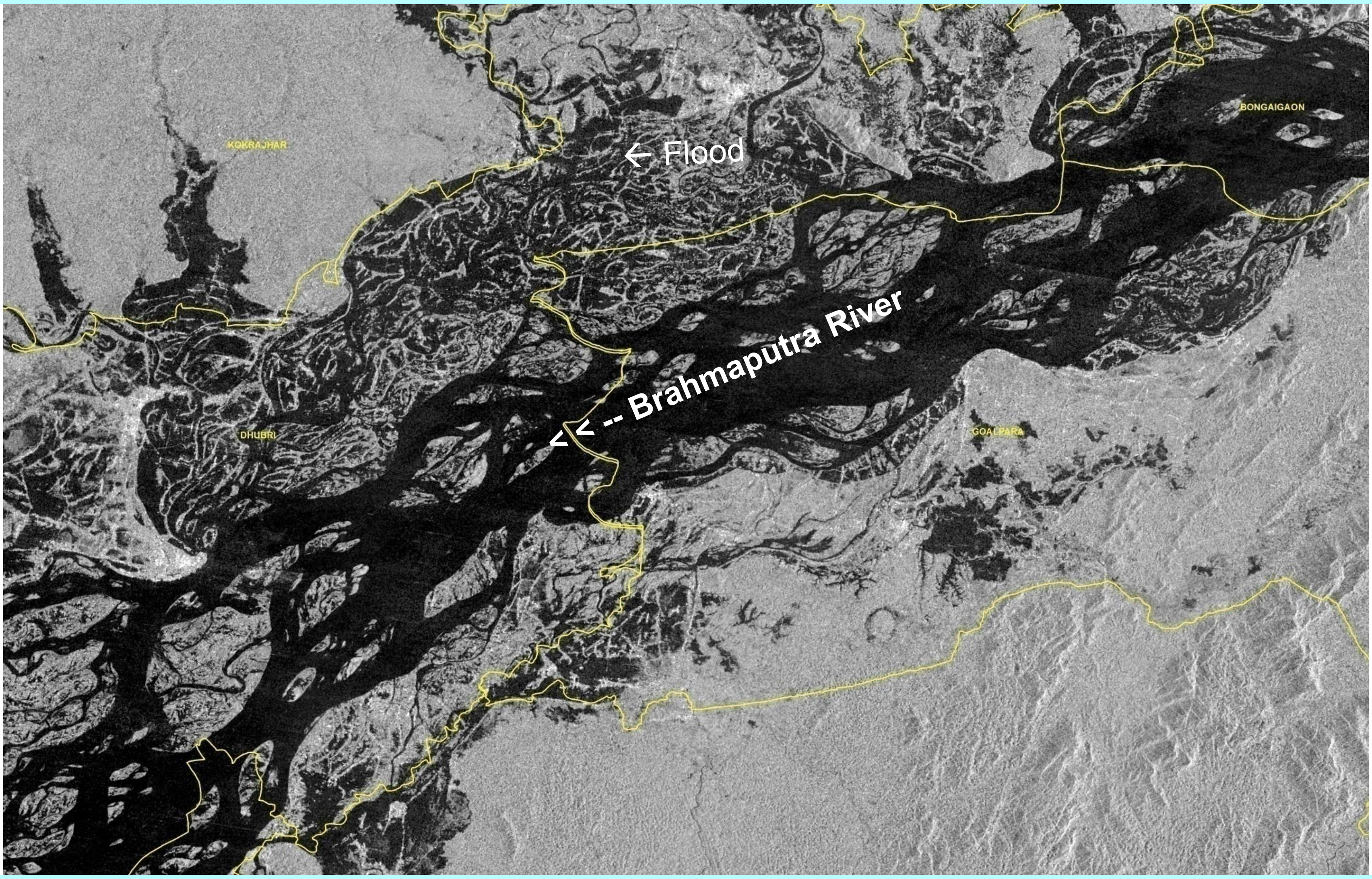
RISAT-1 CRS, 5 Sep 2015

Floods-2015

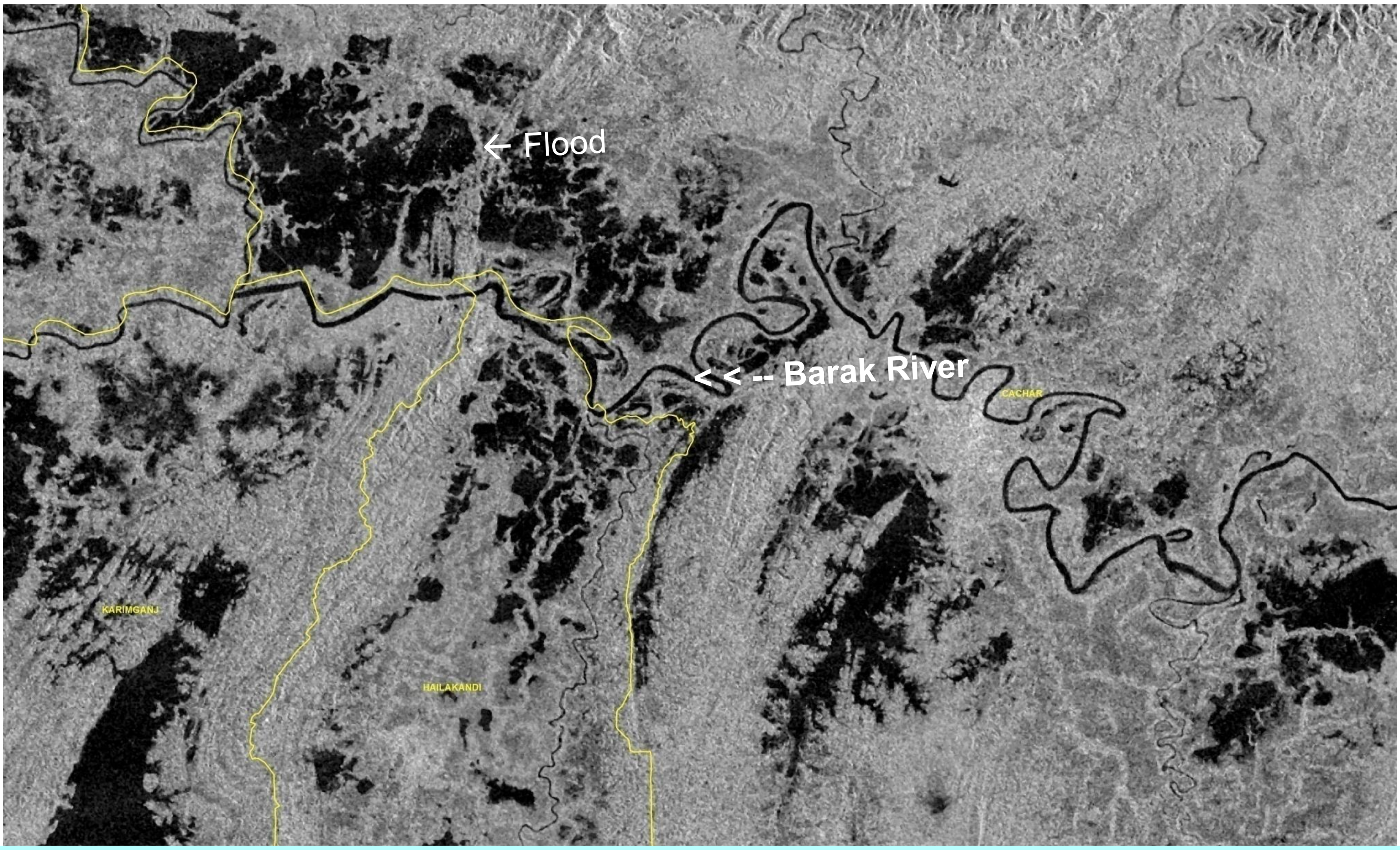

DHEMAJI
< < -- Brahmaputra River
TINSUKIA
DIBRUGARH
← Flood
SIVASAGAR
CHARAIDEO

RISAT-1, 22 Jul 2015

Floods-2015

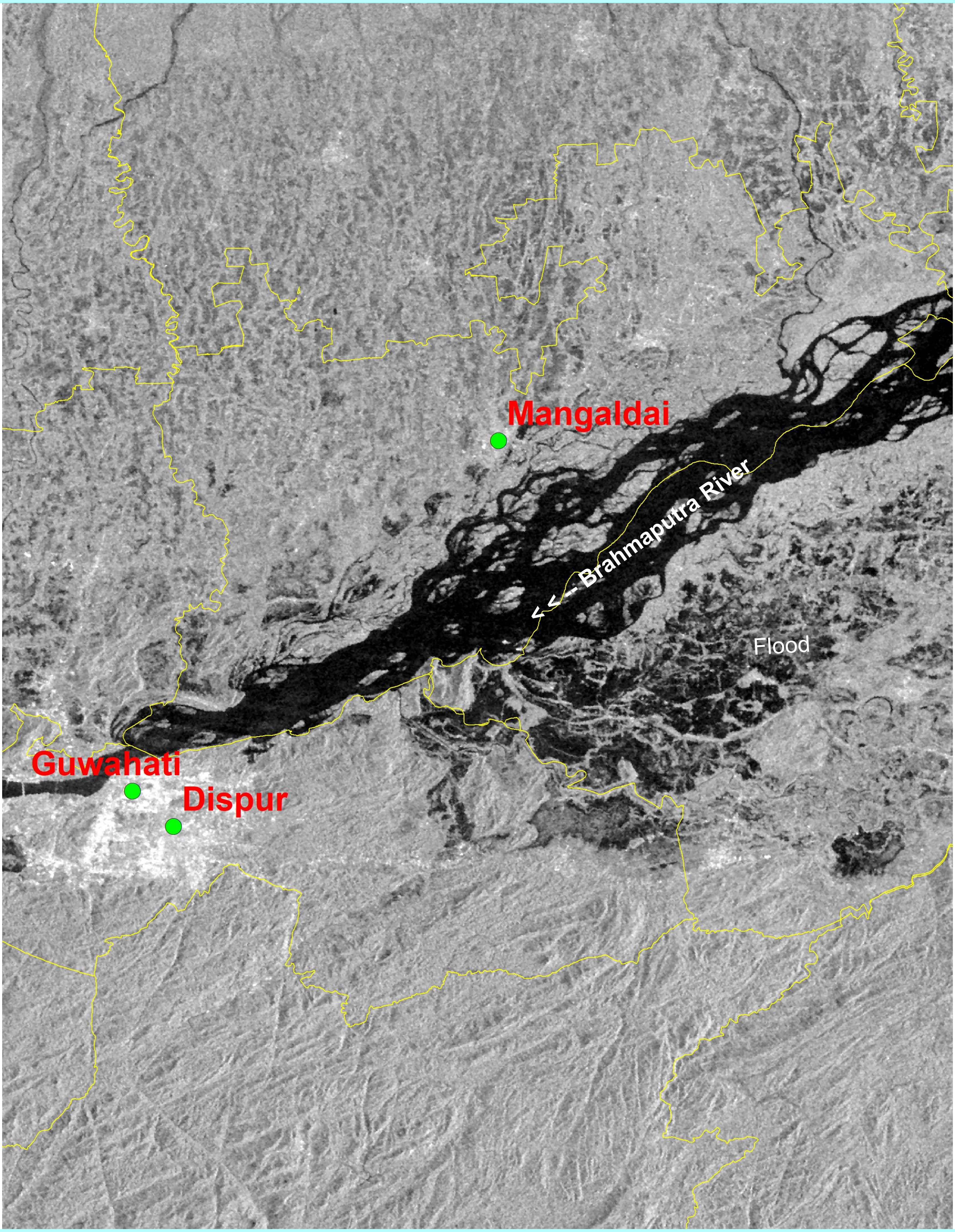

KOKRAJHAR
← Flood
BONGAIGAON
<< -- Brahmaputra River
DHUBRI
GOALPARA

RISAT-1 MRS, 1 Sep 2015


← Flood
<< -- Barak River
CACHAR
KARIMGANJ
HAILAKANDI

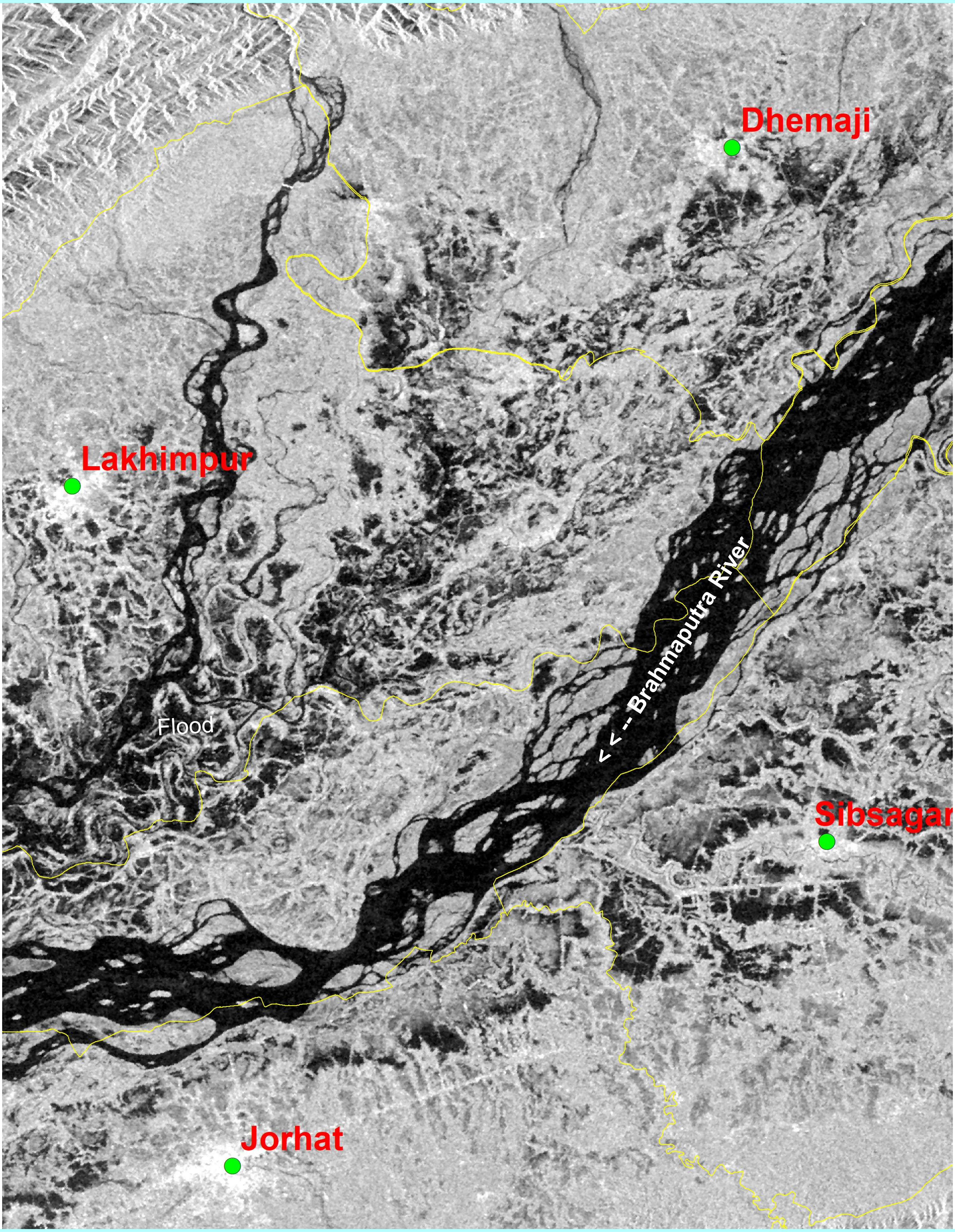
RISAT-1 CRS, 9 Sep 2015

Floods-2017


Mangaldai
<<<-- Brahmaputra River
Flood
Guwahati
Dispur

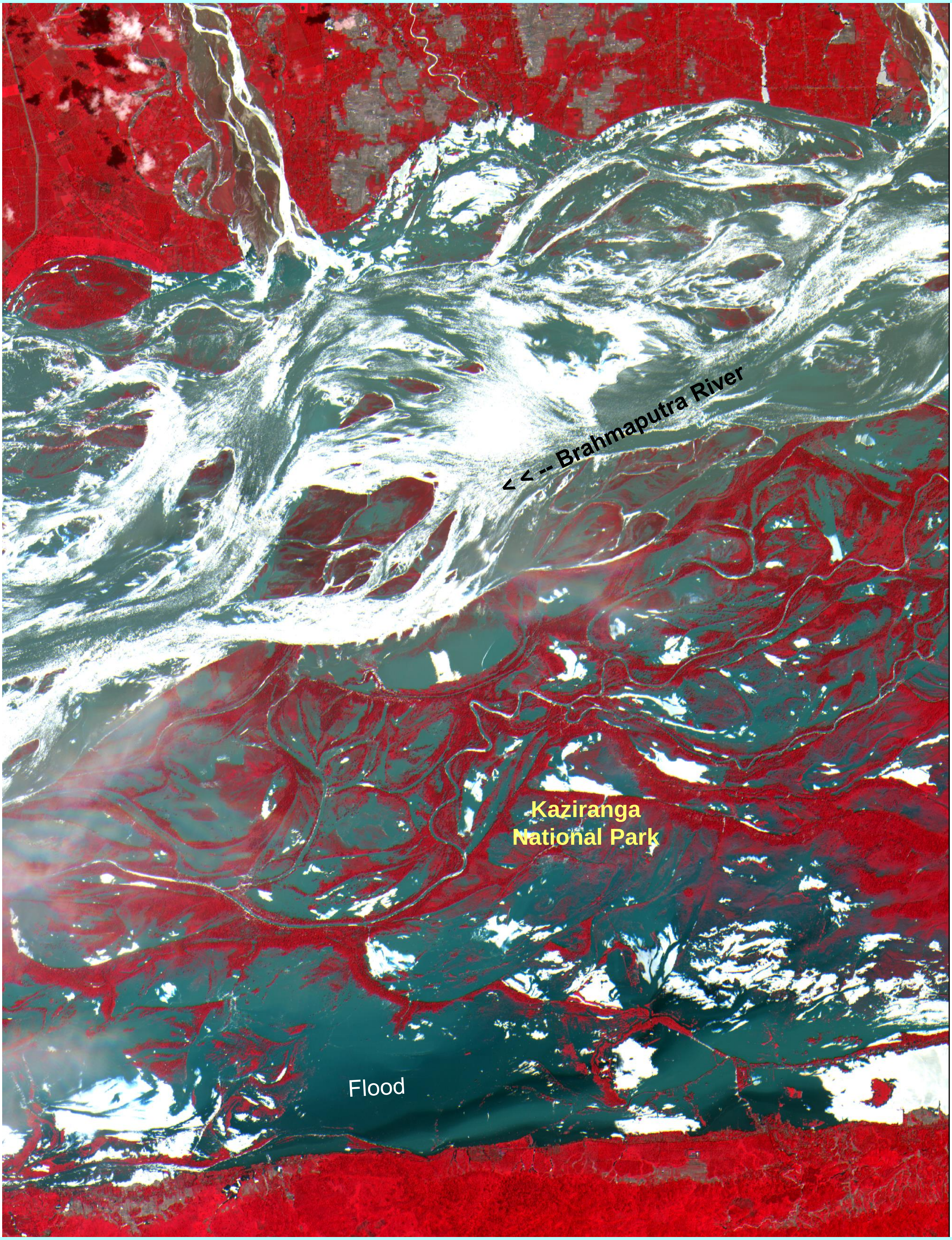
RADARSAT, 7 July 2017

Floods-2017


Dhemaji
Lakhimpur
<-- Brahmaputra River
Flood
Sibsagar
Jorhat

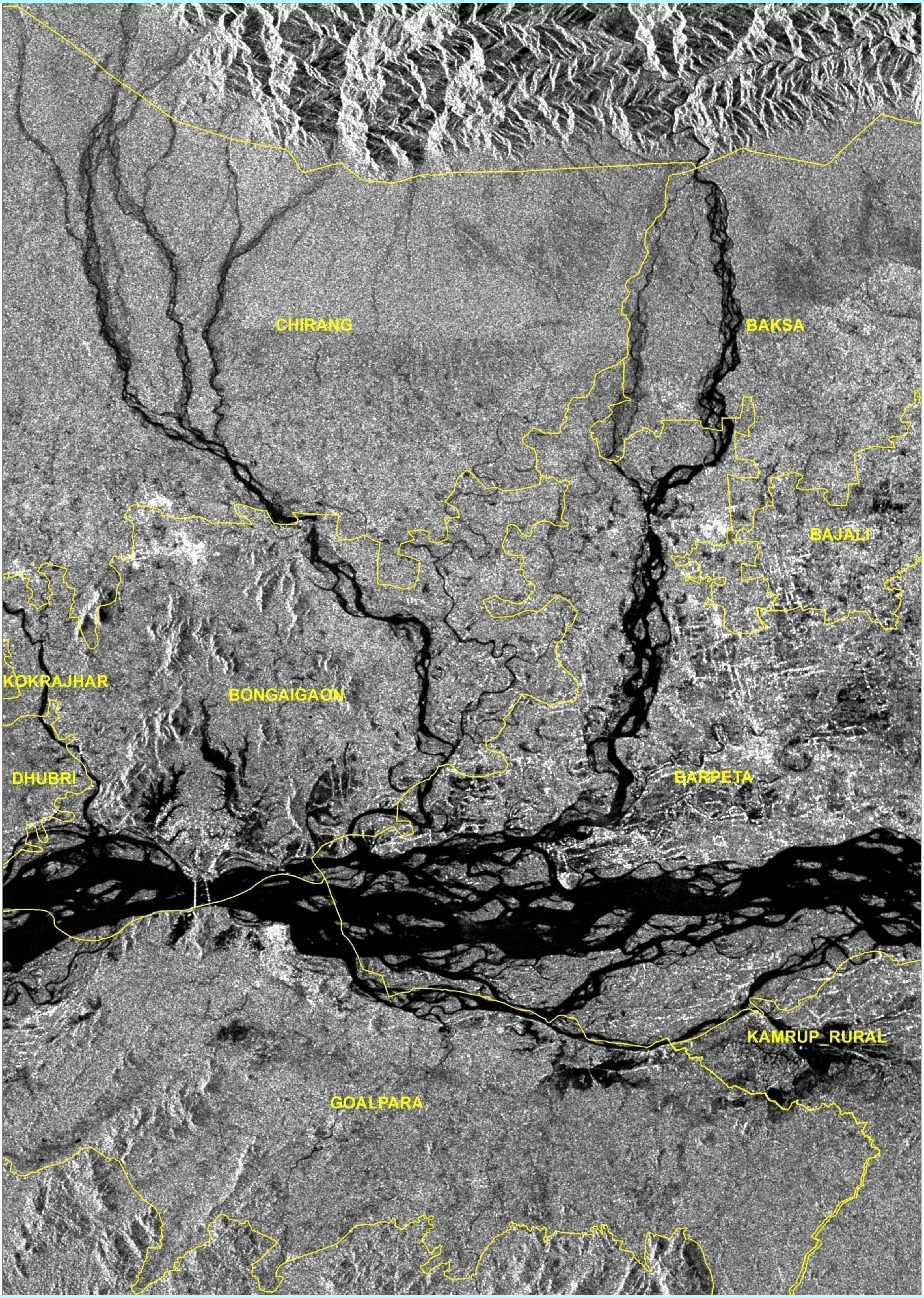
RADARSAT, 12 Jul 2017

Floods-2017


< < -- Brahmaputra River
Kaziranga National Park
Flood

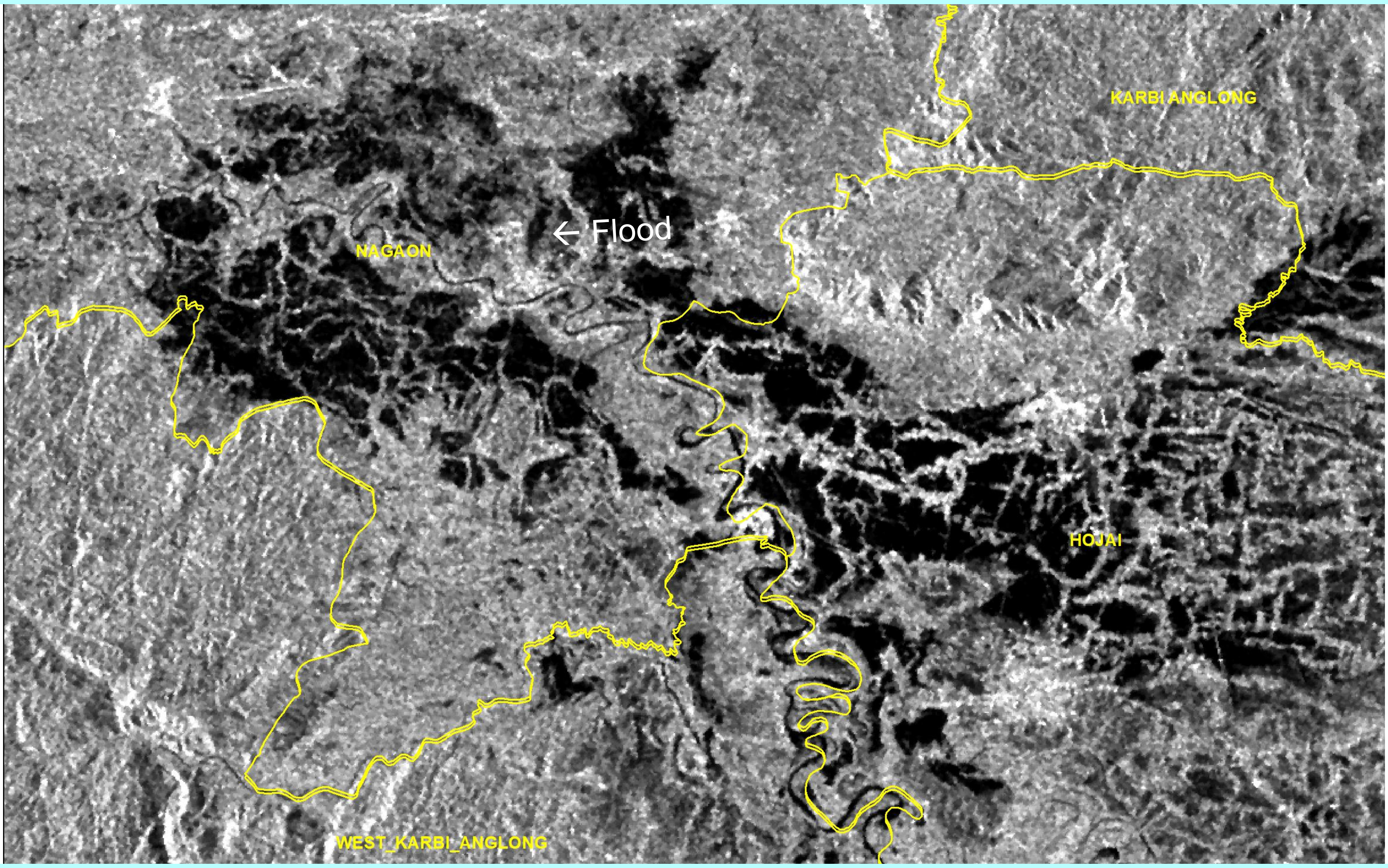
Resourcesat-2A LISS-4 MX, 13 Jul 2017

Floods-2018

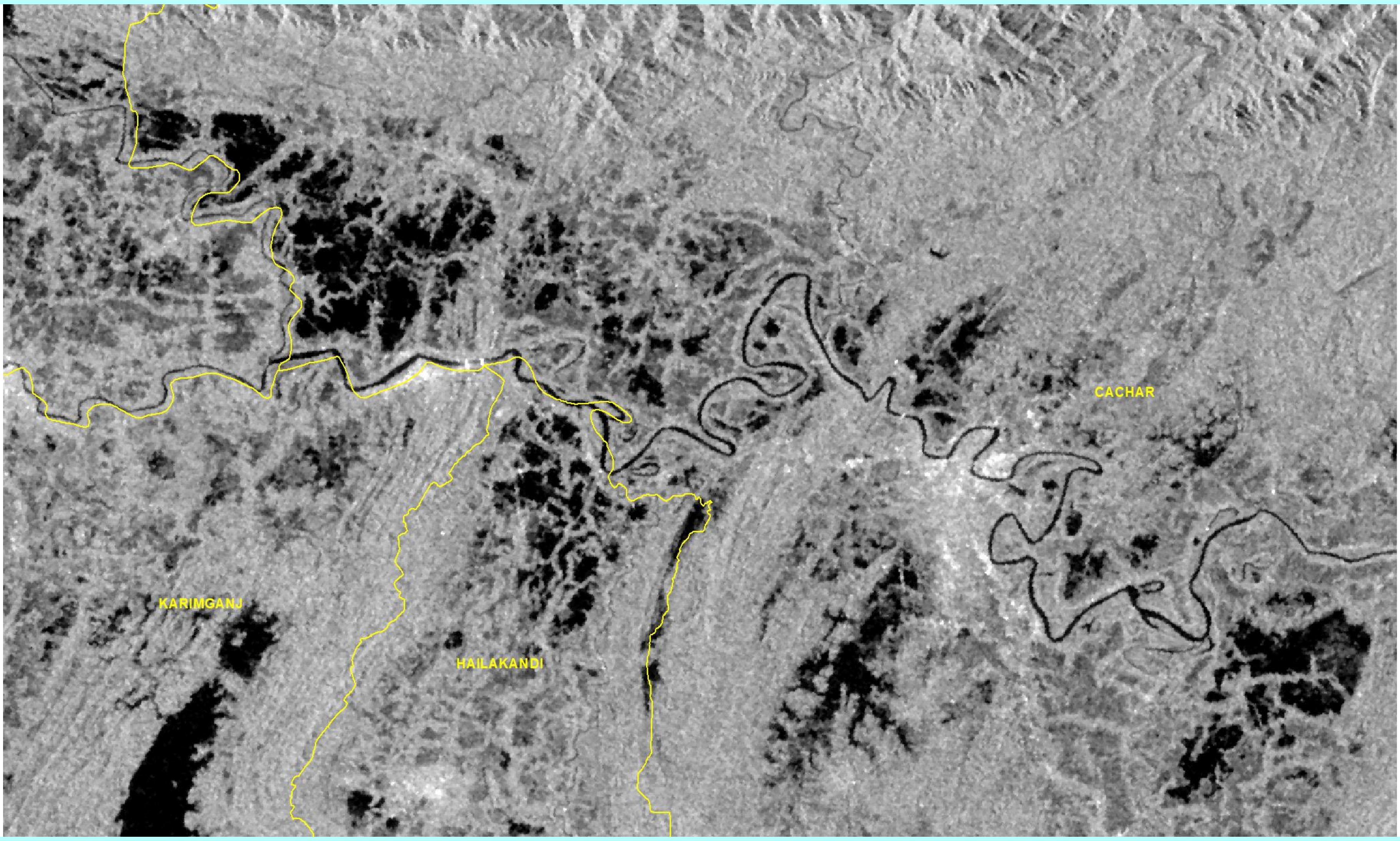

CHIRANG
BAKSA
BAJALI
KOKRAJHAR
BONGAIGAON
DHUBRI
BARPETA
KAMRUP_RURAL
GOALPARA

RADARSAT, 13 Sep 2018

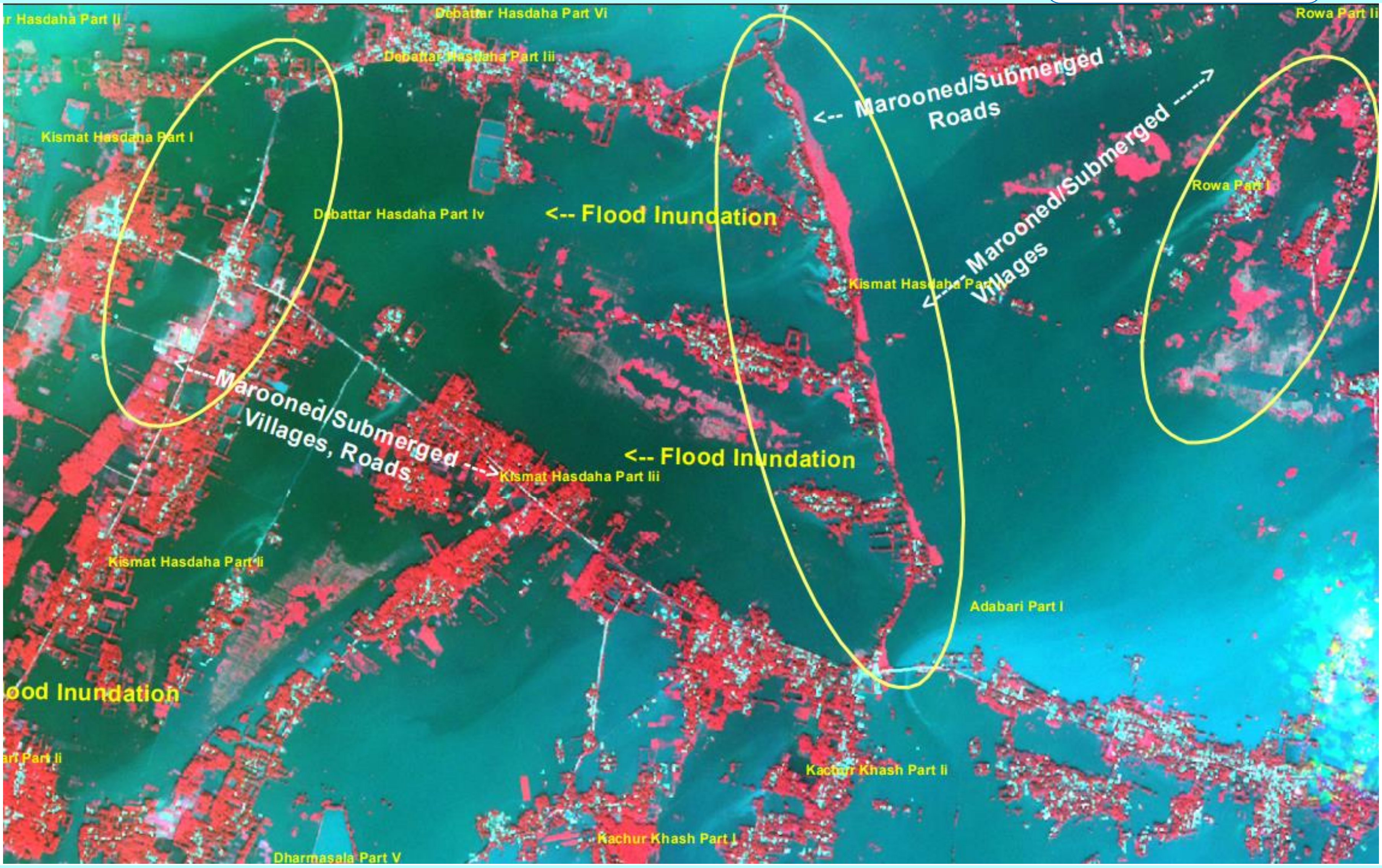
Floods-2018


KARBI ANGLONG
← Flood
NAGAON
HOJAI
WEST_KARBI_ANGLONG

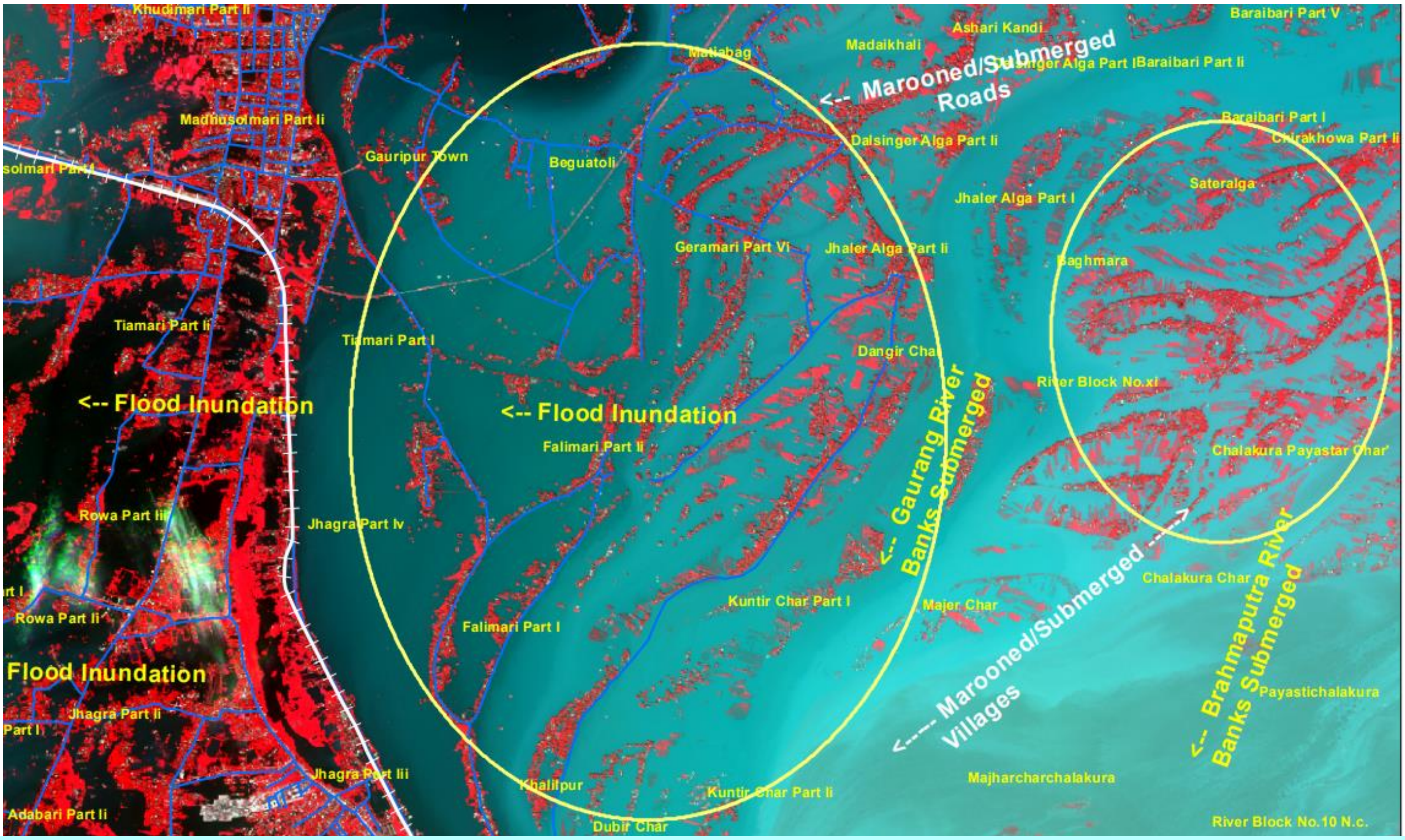
RADARSAT, 16 Jun 2018


CACHAR
KARIMGANJ
HAILAKANDI

RADARSAT-2, 3 Aug 2018

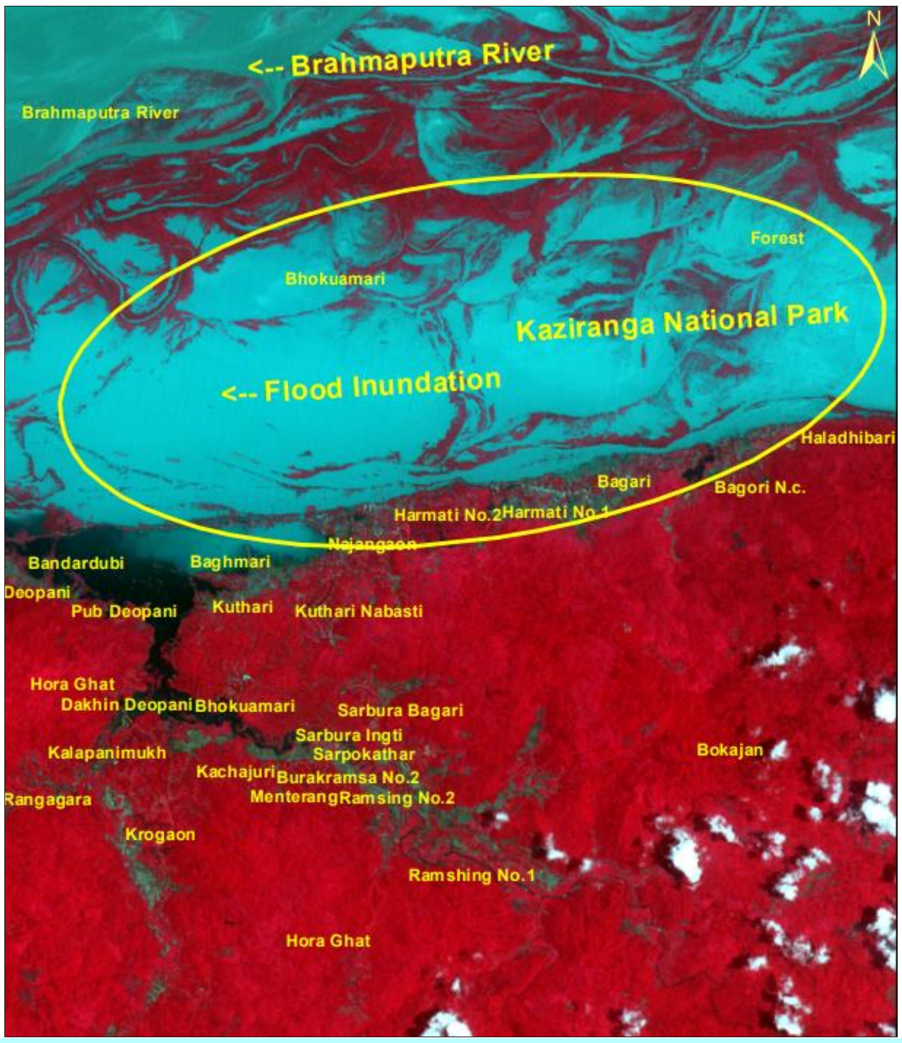

r Hasdaha Part Ii
Debattar Hasdaha Part Vi
Debattar Hasdaha Part Iii
Rowa Part Ii
Kismat Hasdaha Part I
<-- Marooned/Submerged Roads
Marooned/Submerged ----->
Marooned/Submerged Villages
Rowa Part I
Debattar Hasdaha Part Iv
<-- Flood Inundation
Kismat Hasdaha Part I
---->Marooned/Submerged Villages, Roads --->
Kismat Hasdaha Part Iii
<-- Flood Inundation
Kismat Hasdaha Part Ii
Adabari Part I
ood Inundation
ari Part Ii
Kachur Khash Part Ii
Kachur Khash Part I
Dharmasala Part V

Flood Inundation in part of Dhubri District, Assam

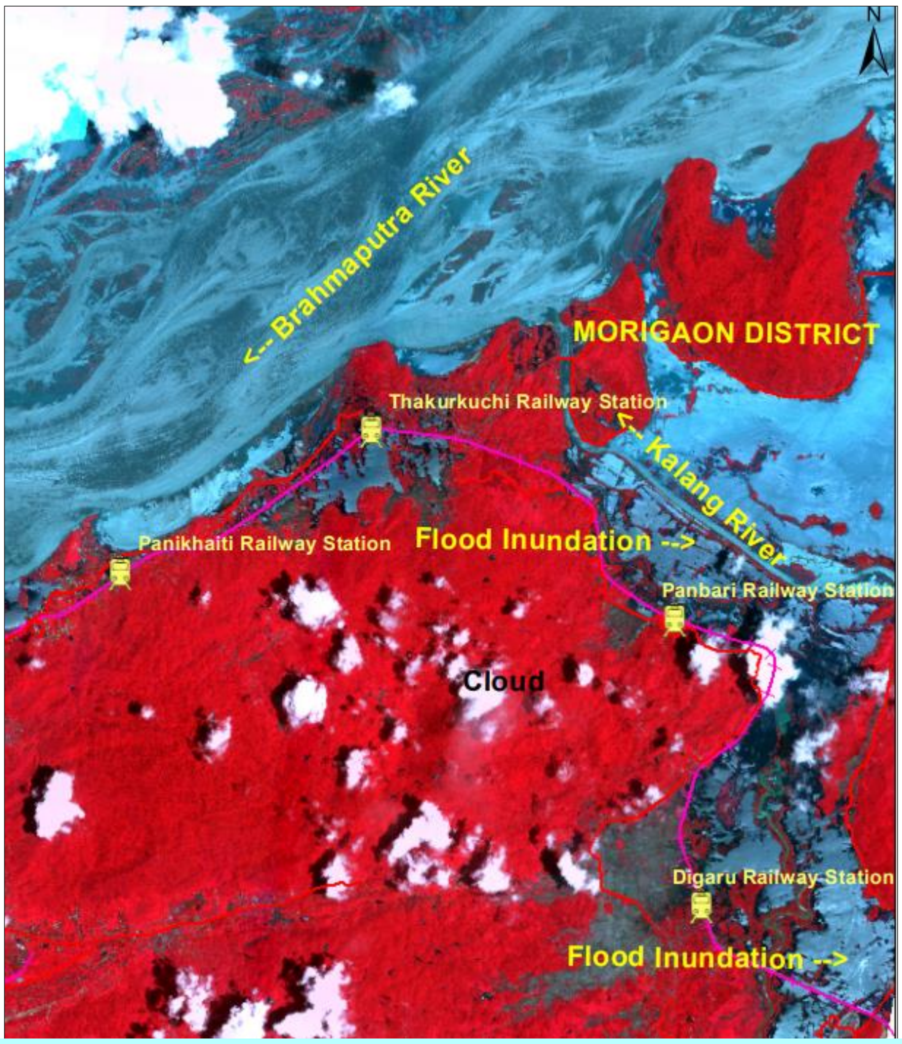

Khudimari Part Ii
Ashari Kandi
Baraibari Part V
Madaikhali
Matiabag
<-- Marooned/Submerged Roads
Dalsinger Alga Part I
Baraibari Part Ii
Madhusolmari Part Ii
solmari Part I
Gauripur Town
Beguatoli
Dalsinger Alga Part Ii
Baraibari Part I
Chirakhowa Part Ii
Sateralga
Jhaler Alga Part I
Geramari Part Vi
Jhaler Alga Part Ii
Baghmara
Tiamari Part Ii
Tiamari Part I
Dangir Char
River Block No.xi
<-- Flood Inundation
<-- Flood Inundation
<-- Gaurang River Banks Submerged
Falimari Part Ii
Chalakura Payastar Char
Rowa Part Iii
Jhagra Part Iv
Chalakura Char
rt I
Kuntir Char Part I
Major Char
Rowa Part Ii
Falimari Part I
<----- Marooned/Submerged Villages
<-- Brahmaputra River Banks Submerged
Flood Inundation
Payastichalakura
Jhagra Part Ii
Part I
Jhagra Part Iii
Khalilpur
Majharcharchalakura
Adabari Part Ii
Kuntir Char Part Ii
Dubir Char
River Block No.10 N.c.

KOMPSAT-3 18 Jul 2019

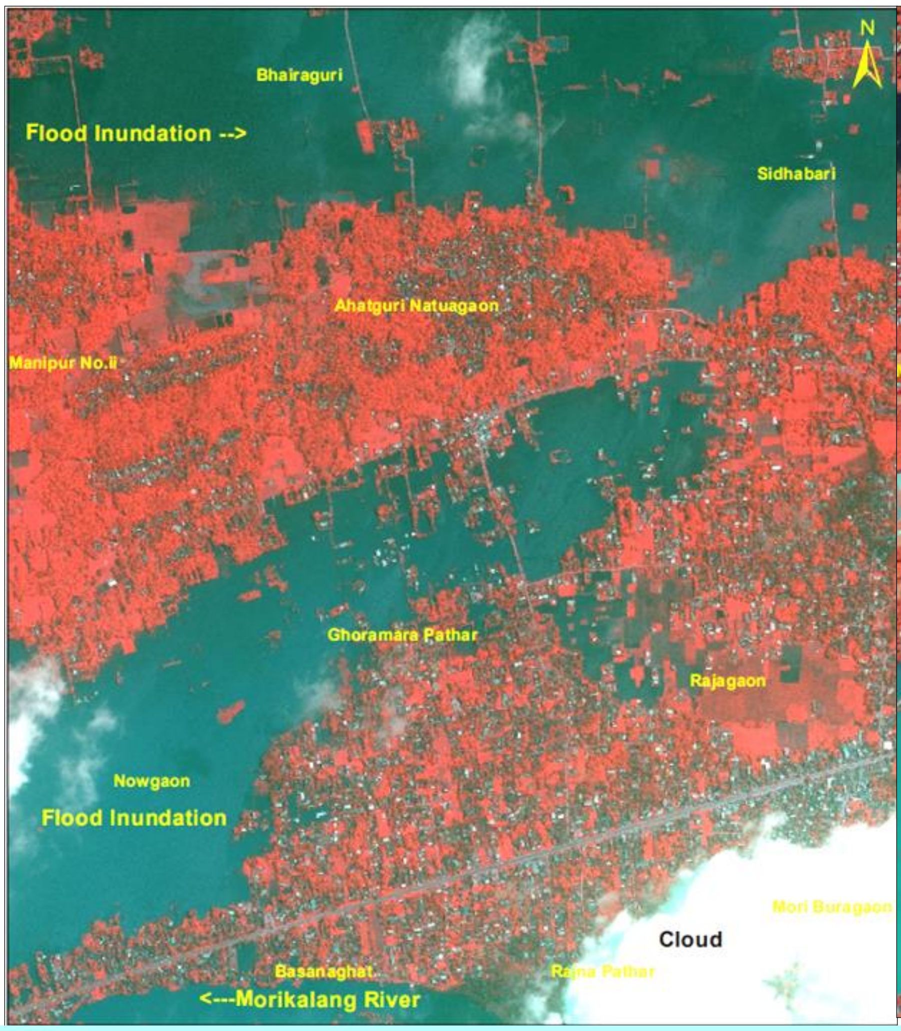
Floods-2019


N
<-- Brahmaputra River
Brahmaputra River
Forest
Bhokuamari
Kaziranga National Park
<-- Flood Inundation
Haladhibari
Bagari
Bagori N.c.
Harmati No.2
Harmati No.1
Najangaon
Bandardubi
Baghmari
Deopani
Pub Deopani
Kuthari
Kuthari Nabasti
Hora Ghat
Dakhin Deopani
Bhokuamari
Sarbura Bagari
Sarbura Ingti
Sarpokathar
Kalapanimukh
Bokajan
Kachajuri
Burakramsa No.2
Rangagara
Menterang
Ramsing No.2
Krogaon
Ramshing No.1
Hora Ghat

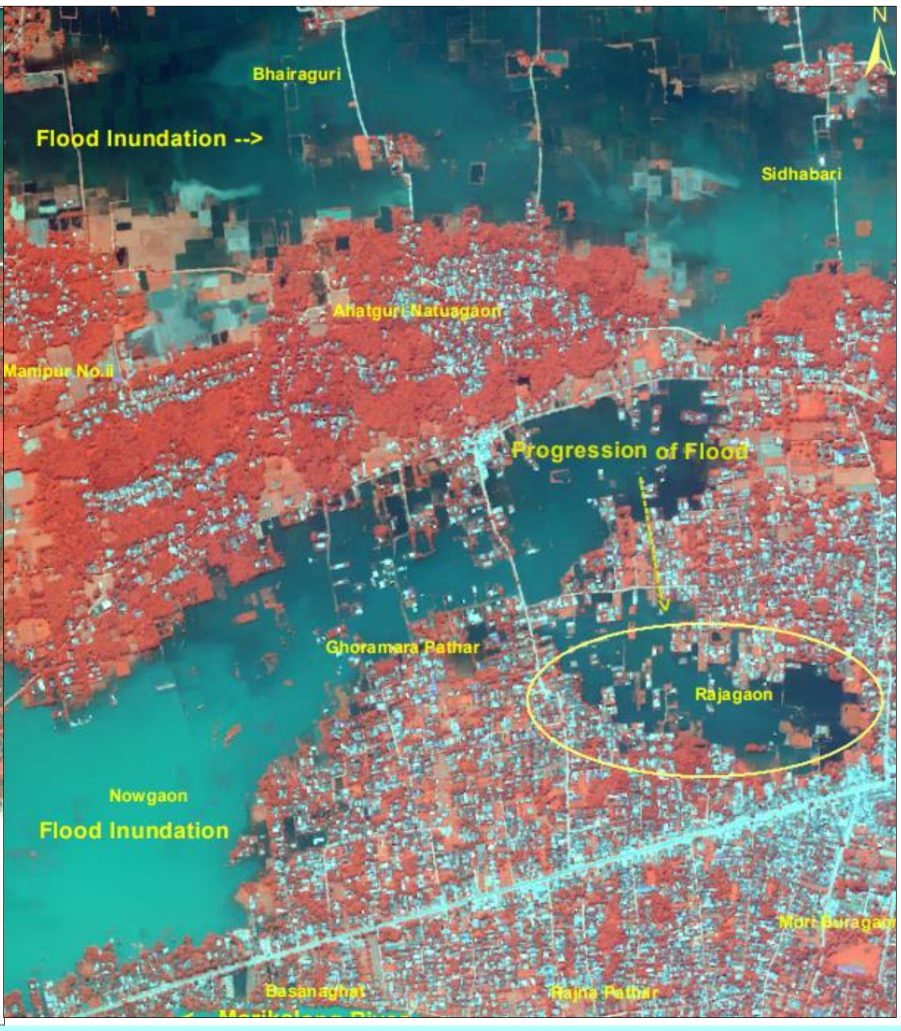
Part of Kaziranga National Park;
Resourcesat-2A LISS-III, 18 Jul 2019


N
<-- Brahmaputra River
MORIGAON DISTRICT
Thakurkuchi Railway Station
<-- Kalang River
Panikhaiti Railway Station
Flood Inundation -->
Panbari Railway Station
Cloud
Digaru Railway Station
Flood Inundation -->

Part of Morigaon District;
GAOFEN-1 MSS, 20 Jul 2019

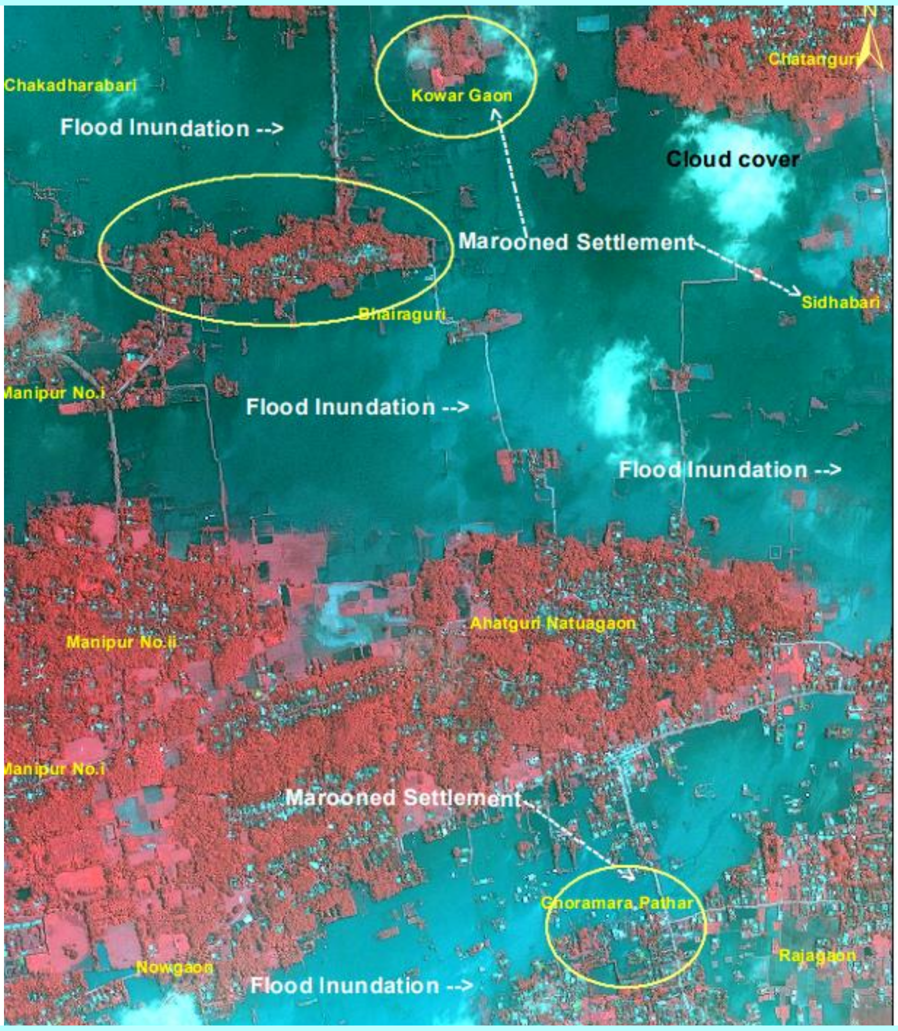

N
Bhairaguri
Flood Inundation -->
Sidhabari
Ahatguri Natuagaon
Manipur No.ii
Ghoramara Pathar
Rajagaon
Nowgaon
Flood Inundation
Mori Buragaon
Cloud
Basanaghat
Rajna Pathar
<---Morikalang River

Part of Morigaon District; PLEIADES, 18 Jul 2019

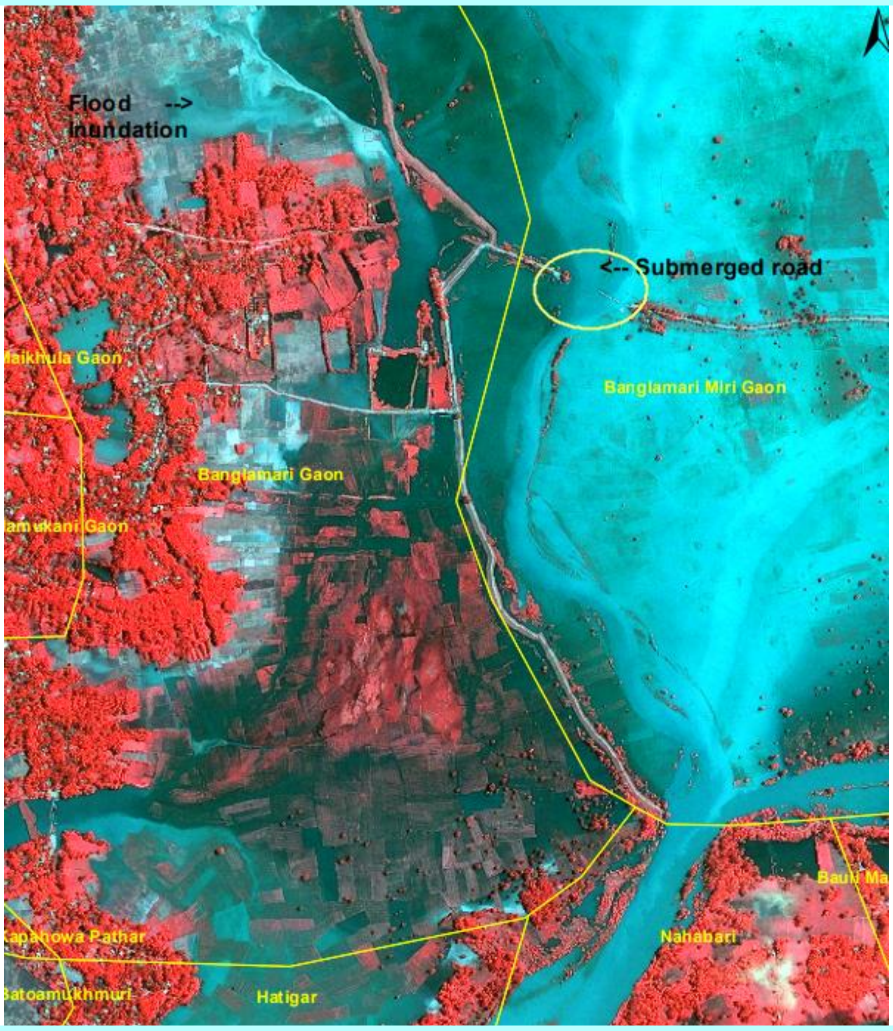

N
Bhairaguri
Flood Inundation -->
Sidhabari
Ahatguri Natuagaon
Manipur No.ii
Progression of Flood
Ghoramara Pathar
Rajagaon
Nowgaon
Flood Inundation
Mori Buragaon
Basanaghat
Rajna Pathar

Part of Morigaon District; KOMPSAT-3 20 Jul 2019

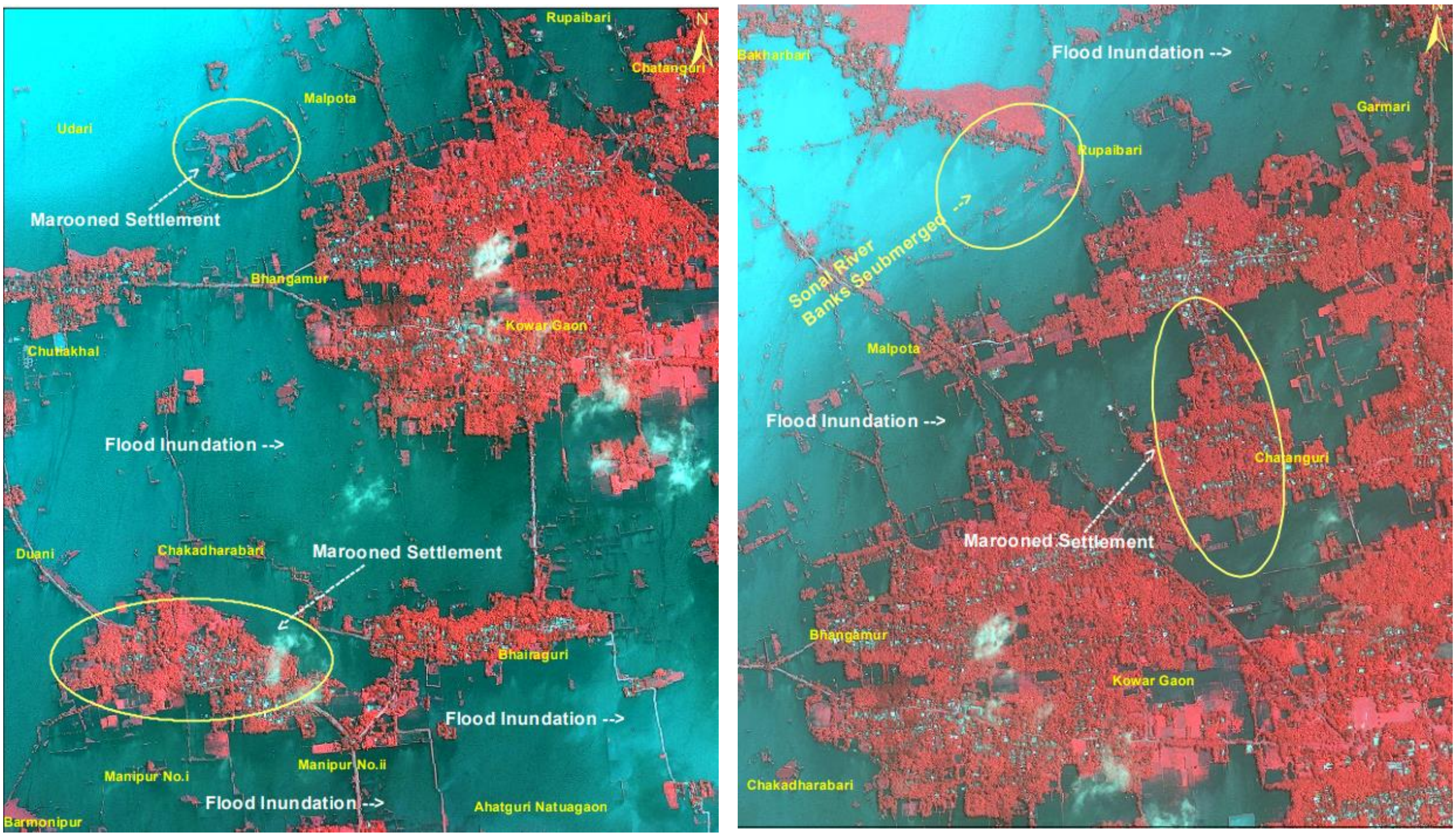
Floods-2019


Chakadharabari
Kowar Gaon
Chatanguri
Flood Inundation -->
Cloud cover
Marooned Settlement
Sidhabari
Bhairaguri
Manipur No.i
Flood Inundation -->
Flood Inundation -->
Ahatguri Natuagaon
Manipur No.ii
Manipur No.i
Marooned Settlement
Ghoramara Pathar
Rajagaon
Nowgaon
Flood Inundation -->
N

Parts of Morigaon District: PLEIADES ;18 Jul 2019

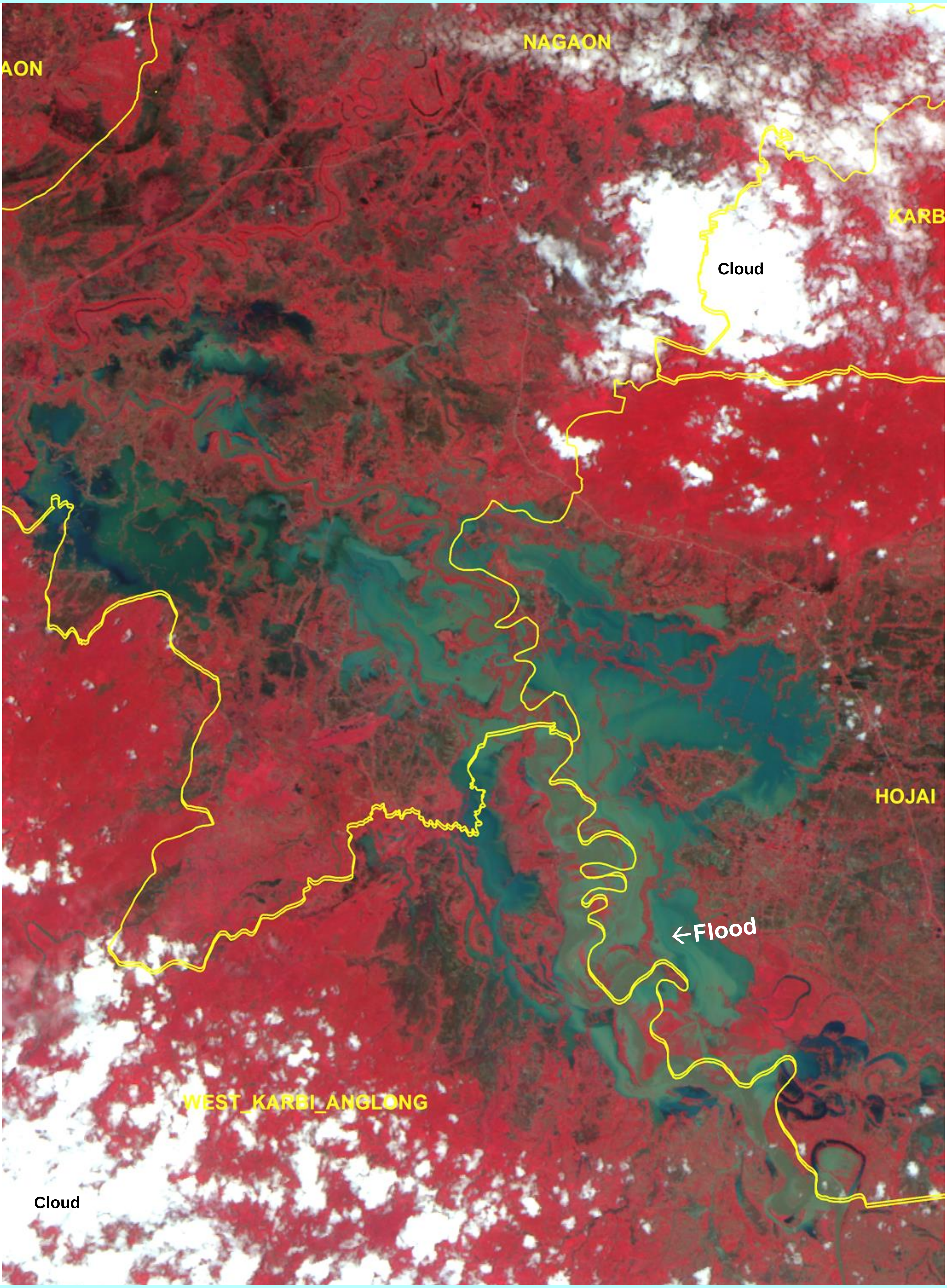

Flood -->
Inundation
<-- Submerged road
Banglamari Miri Gaon
Banglamari Gaon
Nahabari
Hatigar

Parts of Dhemaji District: PLEIADES ;18 Jul 2019


Rupaibari
Chatanguri
Malpota
Udari
Marooned Settlement
Bhangamur
Chunakhal
Kowar Gaon
Flood Inundation -->
Duani
Chakadharabari
Marooned Settlement
Bhairaguri
Flood Inundation -->
Manipur No.i
Manipur No.ii
Flood Inundation -->
Ahatguri Natuagaon
Barmonipur
Bakharbari
Flood Inundation -->
Garmari
Rupaibari
Sonai River Banks Seubmerged -->
Malpota
Flood Inundation -->
Chatanguri
Marooned Settlement
Bhangamur
Kowar Gaon
Chakadharabari
N

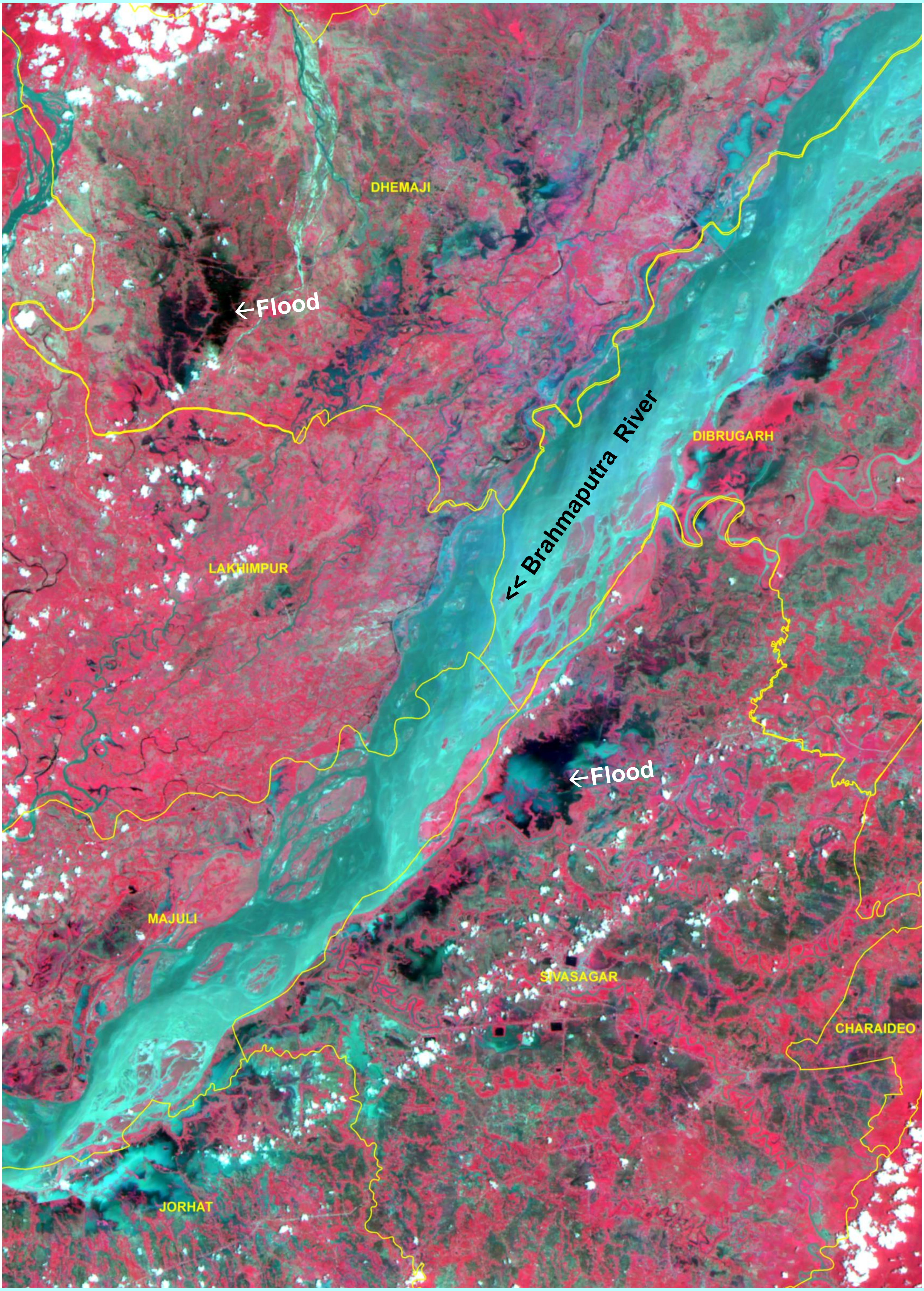
Parts of Morigaon District, PLEIADES ;18 Jul 2019

Floods-2020


NAGAON
AON
KARB
Cloud
HOJAI
←Flood
WEST_KARBI_ANGLONG
Cloud

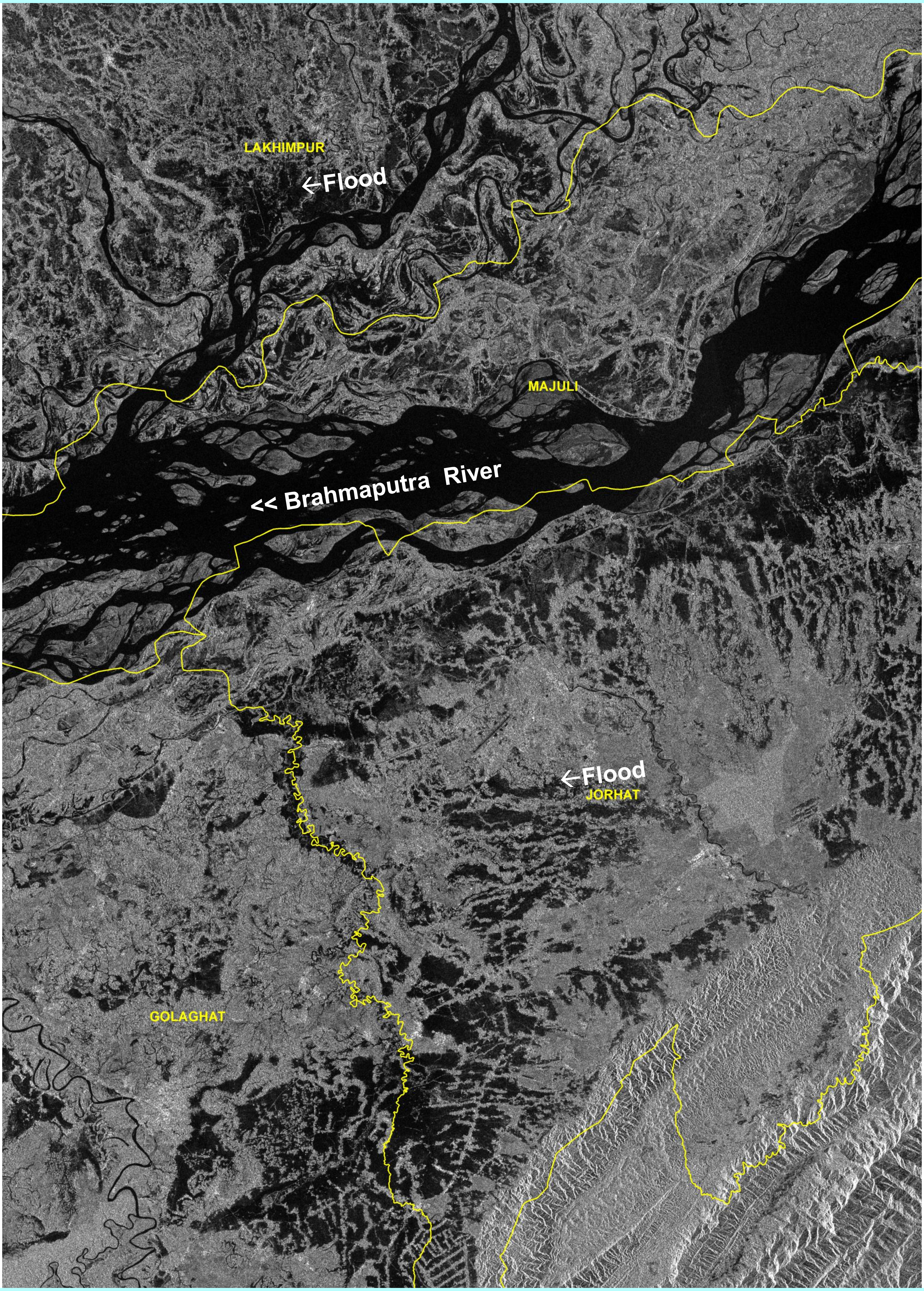
Resourcesat-2 AWiFS; 28 May 2020

Floods-2020


DHEMAJI
←Flood
<< Brahmaputra River
DIBRUGARH
LAKHIMPUR
←Flood
MAJULI
SIVASAGAR
CHARAIDEO
JORHAT

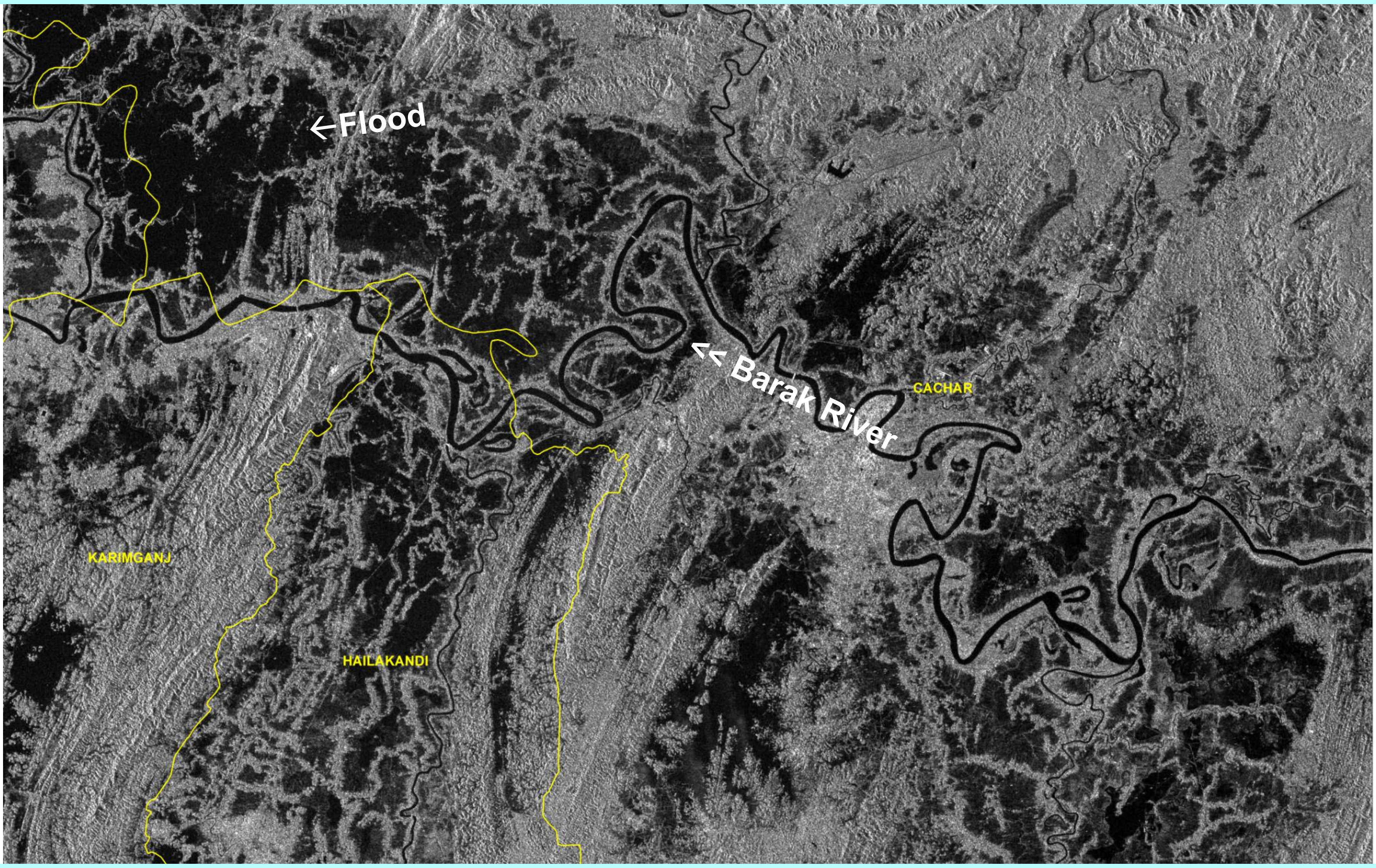
Resourcesat-2 AWiFS; 28 May 2020

Floods-2020

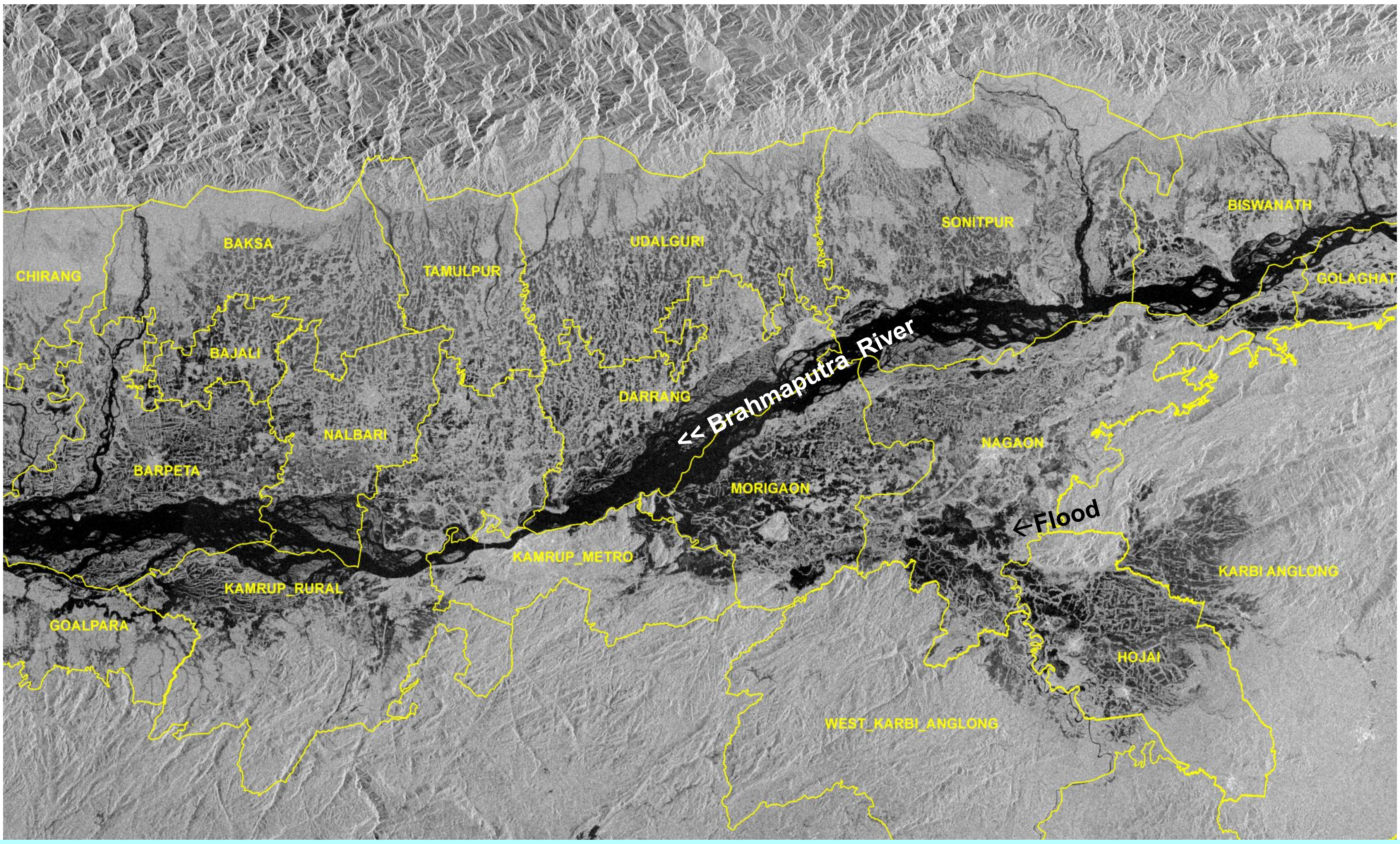

LAKHIMPUR
←Flood
MAJULI
<< Brahmaputra River
←Flood
JORHAT
GOLAGHAT

Sentinel-1A; 21 Jun 2020

Floods-2020

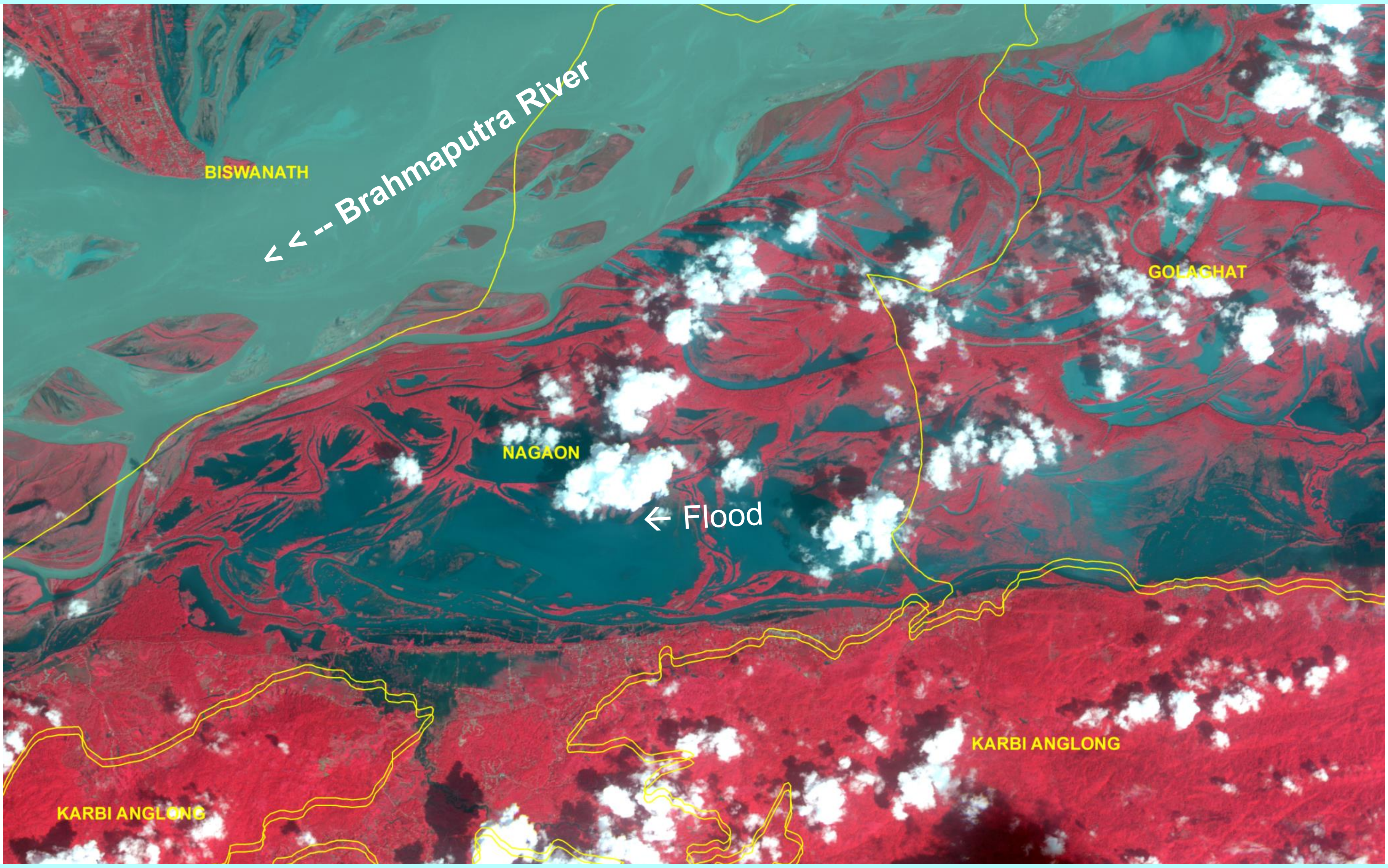

←Flood
<< Barak River
CACHAR
KARIMGANJ
HAILAKANDI

Sentinel-1A; 1 Aug 2020

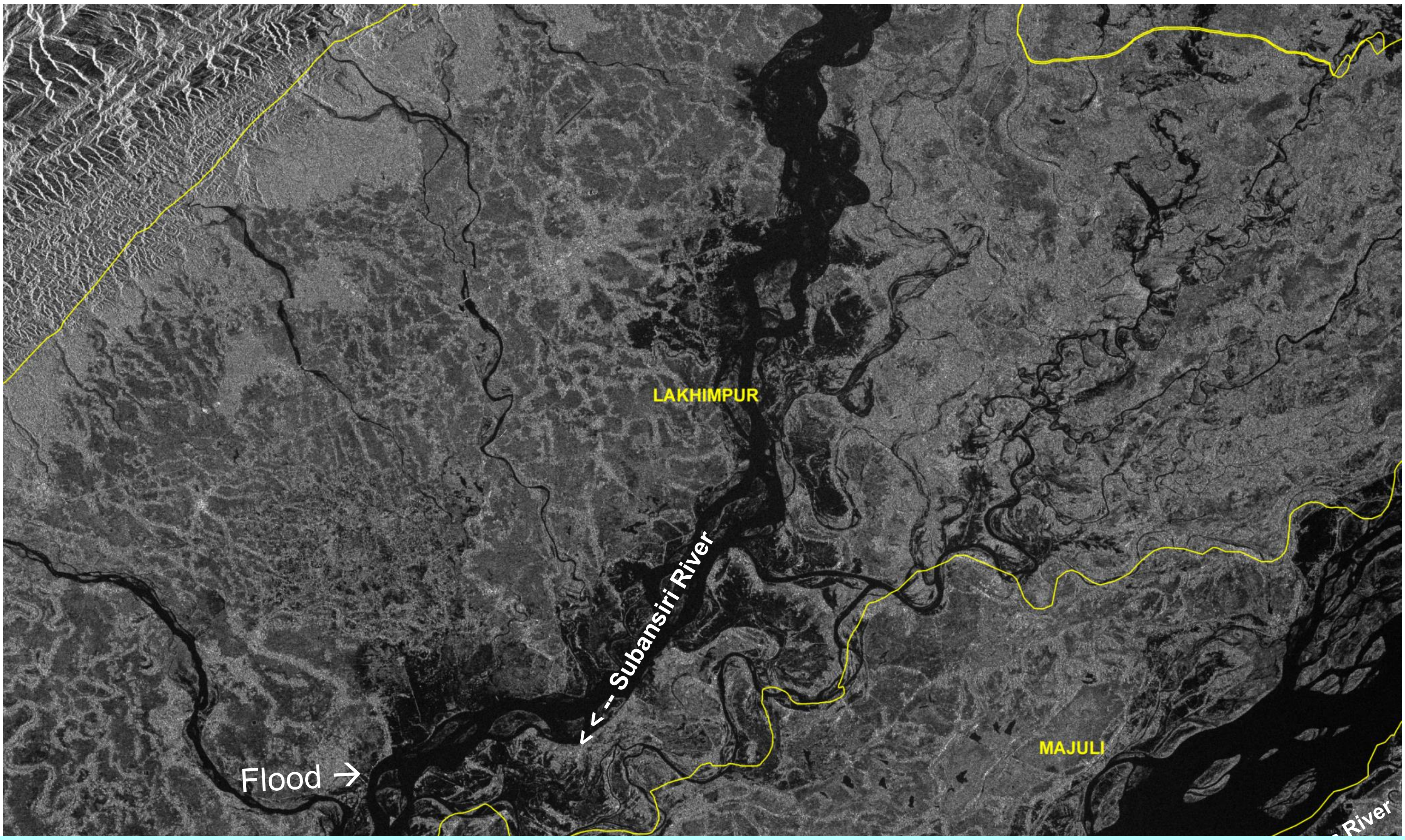

BISWANATH
SONITPUR
BAKSA
UDALGURI
CHIRANG
TAMULPUR
GOLAGHAT
Brahmaputra River
BAJALI
DARRANG
<<
NALBARI
NAGAON
BARPETA
MORIGAON
←Flood
KAMRUP_METRO
KARBI ANGLONG
KAMRUP_RURAL
GOALPARA
HOJAI
WEST_KARBI_ANGLONG

RADARSAT-2; 15 July 2020

Floods-2021

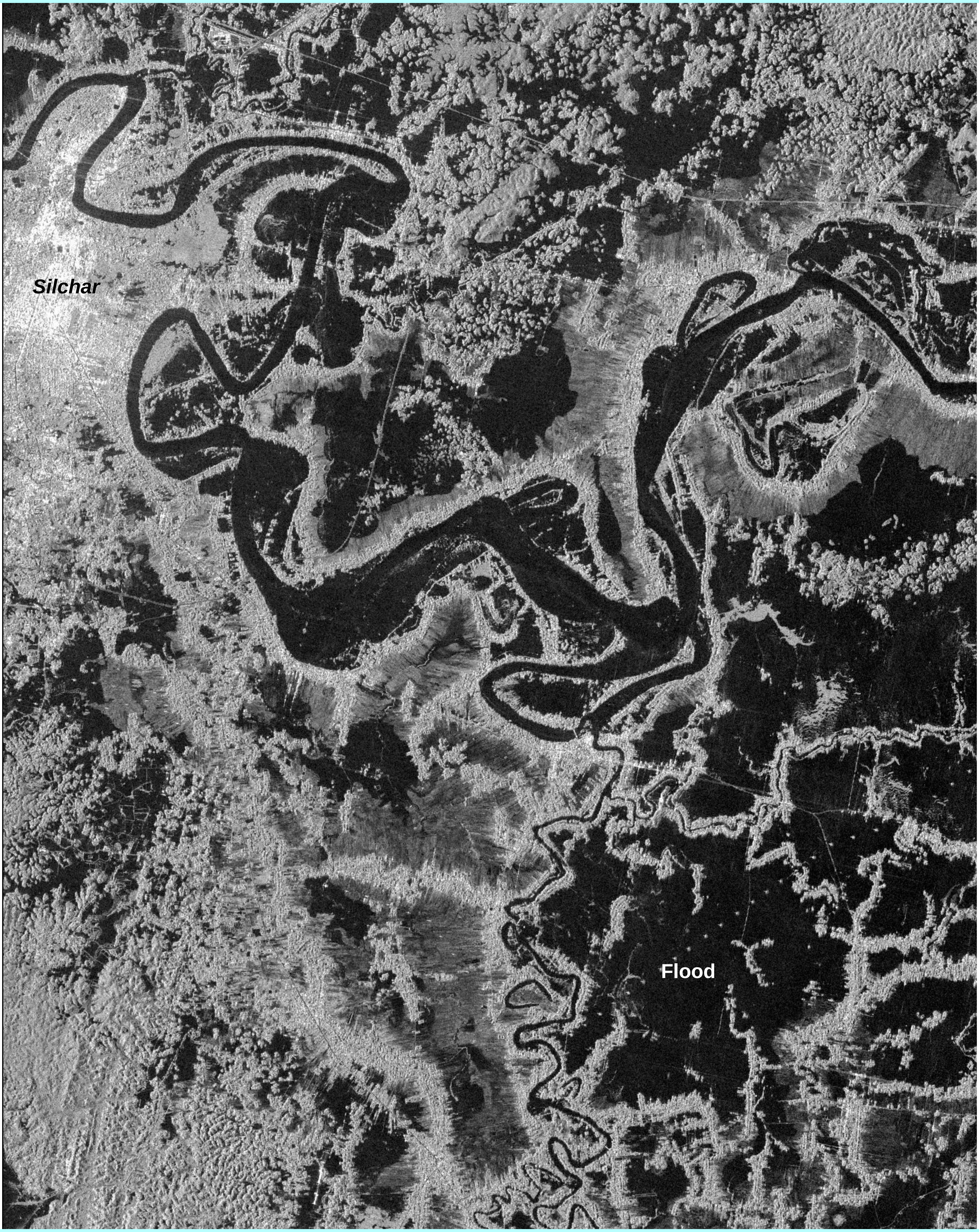

BISWANATH
< < -- Brahmaputra River
GOLAGHAT
NAGAON
← Flood
KARBI ANGLONG
KARBI ANGLONG

Resourcesat-2 L4; 5 Sep 2021


LAKHIMPUR
< < -- Subansiri River
Flood →
MAJULI
River

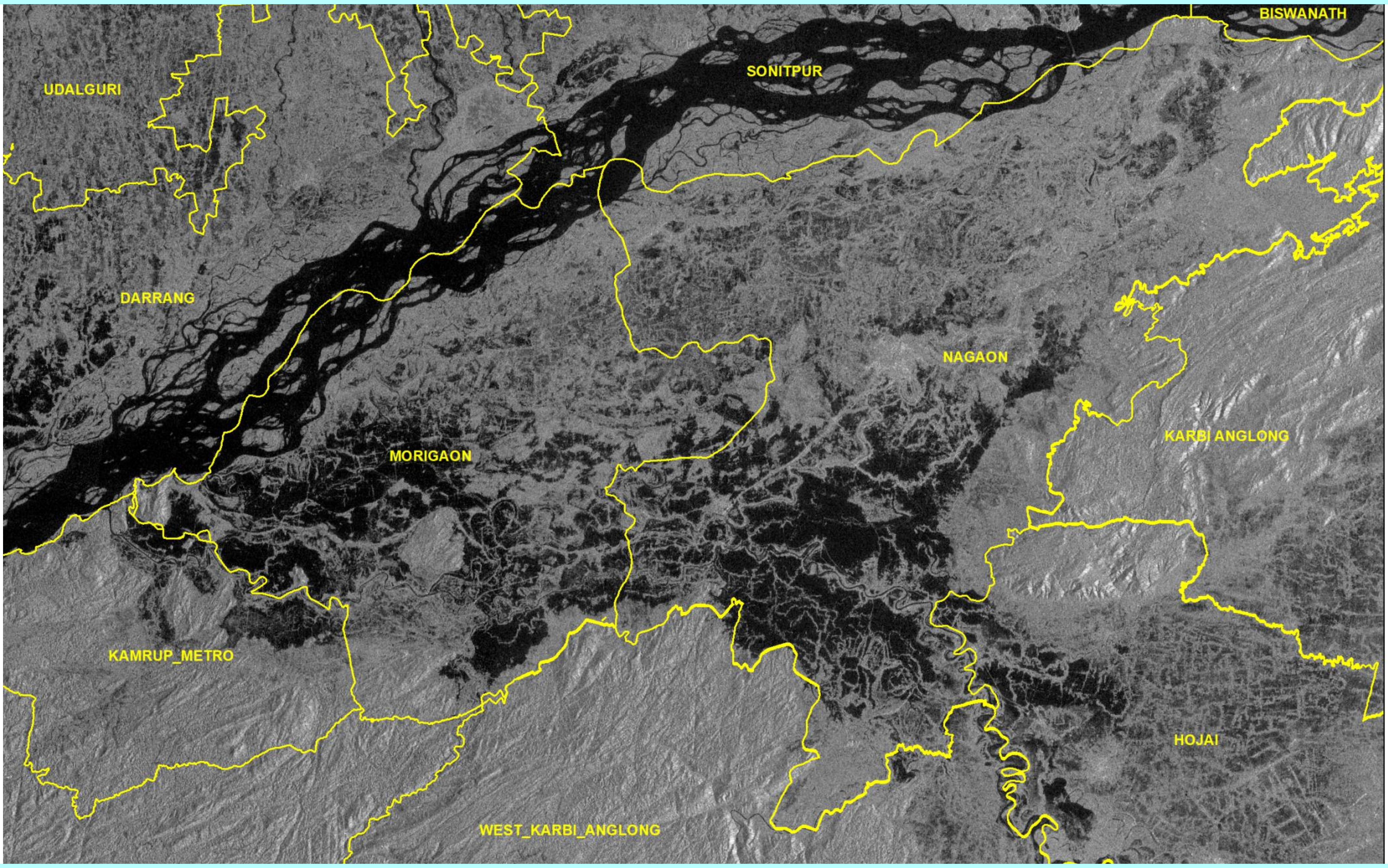
Sentinel-1A; 27 Aug 2021

Floods-2022

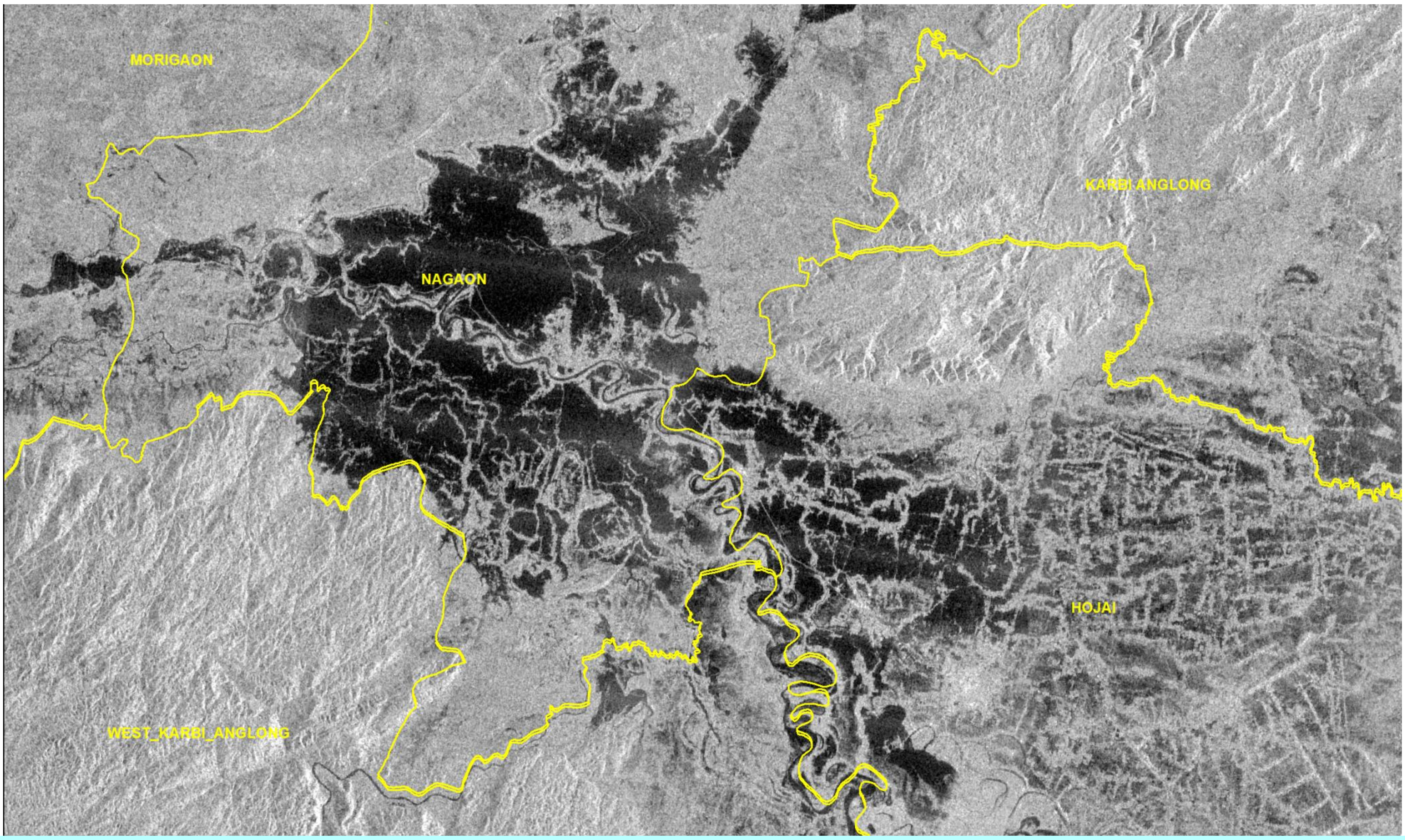

Silchar
Flood

RISAT-1A FRS; 19 May 2022

Floods-2022

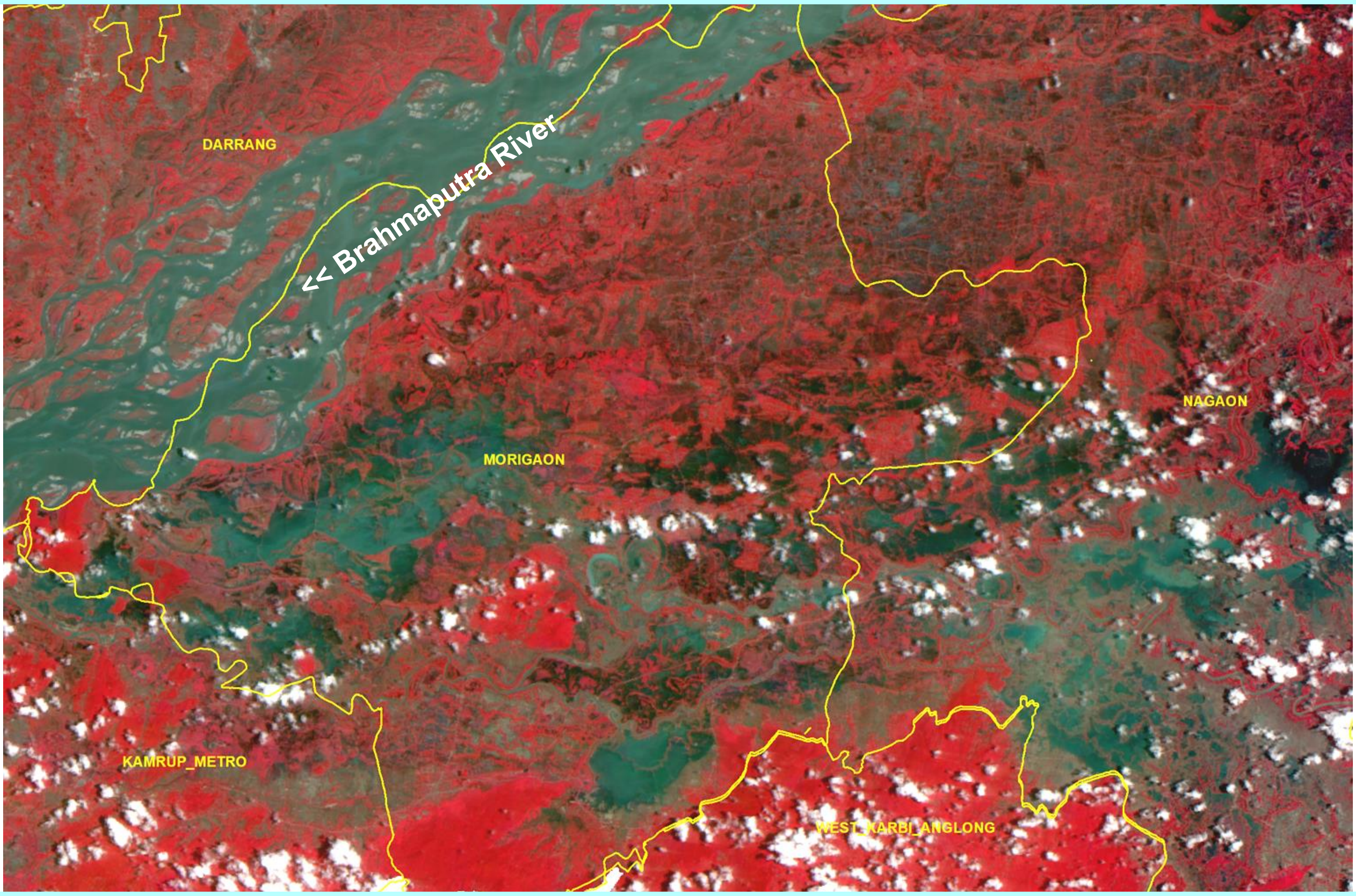

UDALGURI
SONITPUR
BISWANATH
DARRANG
NAGAON
KARBI ANGLONG
MORIGAON
KAMRUP_METRO
HOJAI
WEST_KARBI_ANGLONG

RISAT-1A MRS; 24 Jun 2022

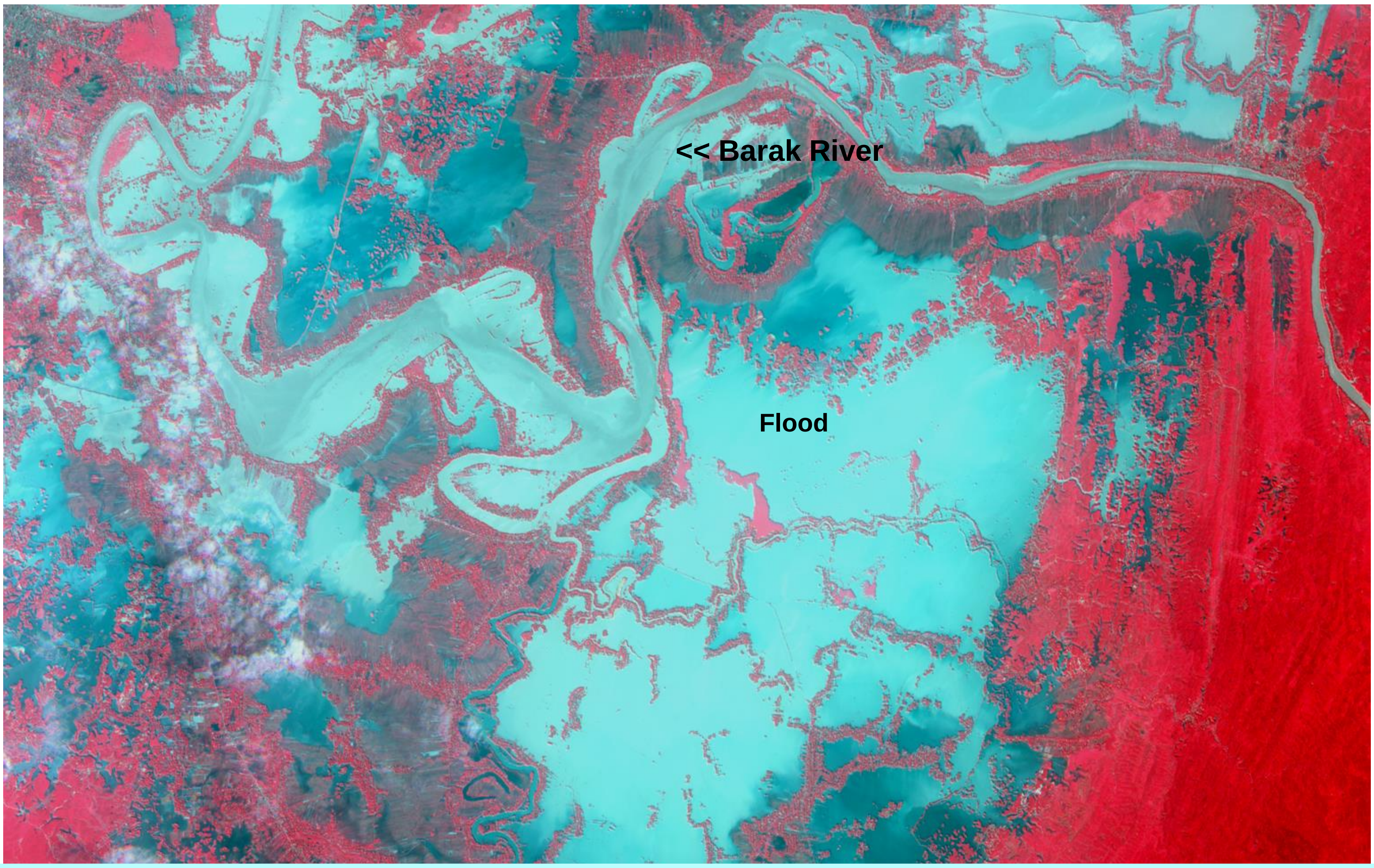

MORIGAON
KARBI ANGLONG
NAGAON
HOJAI
WEST_KARBI_ANGLONG

RISAT-1A MRS; 22 May 2022

Floods-2022

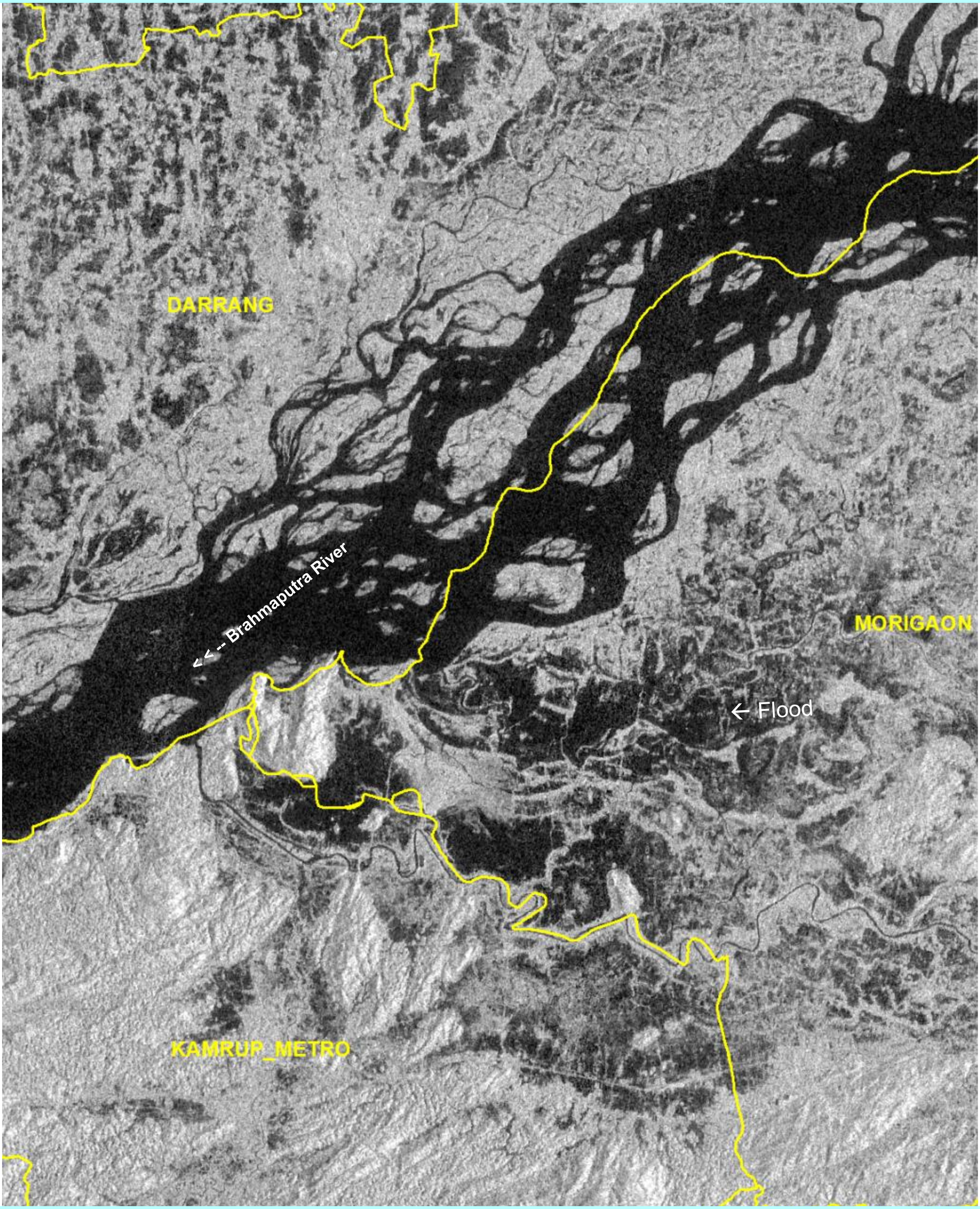

DARRANG
<< Brahmaputra River
MORIGAON
NAGAON
KAMRUP_METRO
WEST_KARBI_ANGLONG

Resourcesat-2 AWiFS; 14 July 2022


<< Barak River
Flood

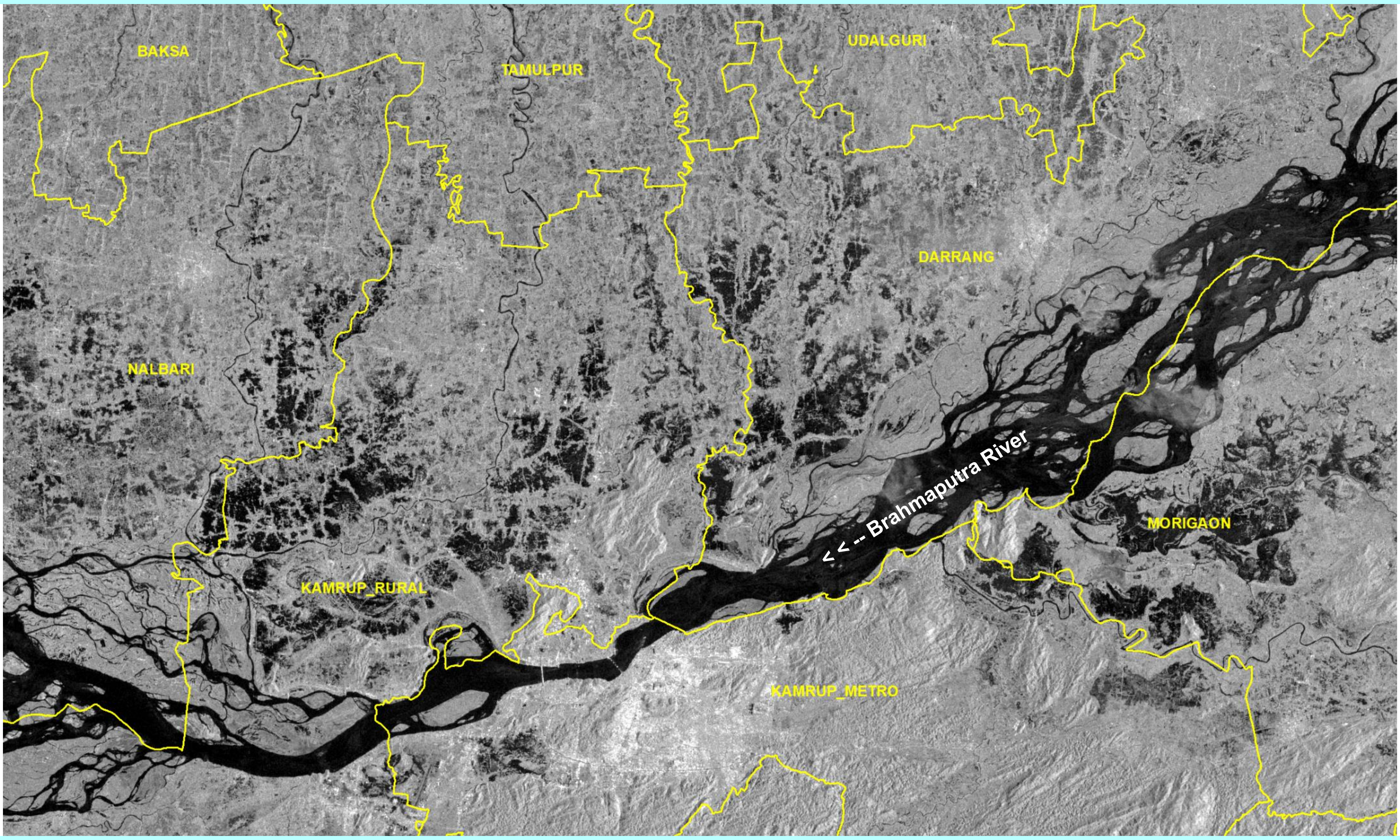
Resourcesat-2A LISS-IV; 20 May 2022

Floods-2023

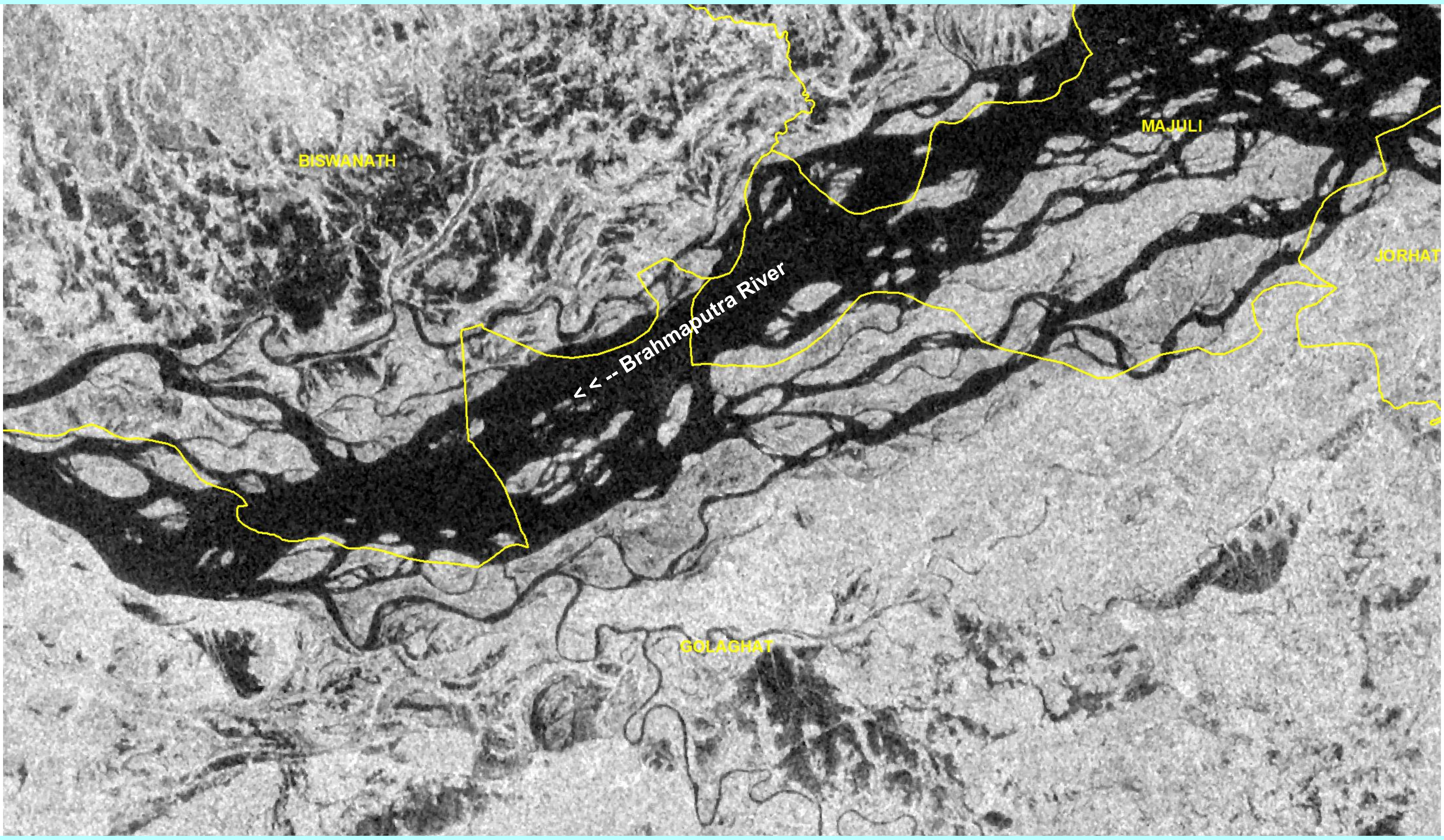

DARRANG
<< -- Brahmaputra River
MORIGAON
← Flood
KAMRUP_METRO

RISAT-1A MRS; 20 Jul 2023

Floods-2023

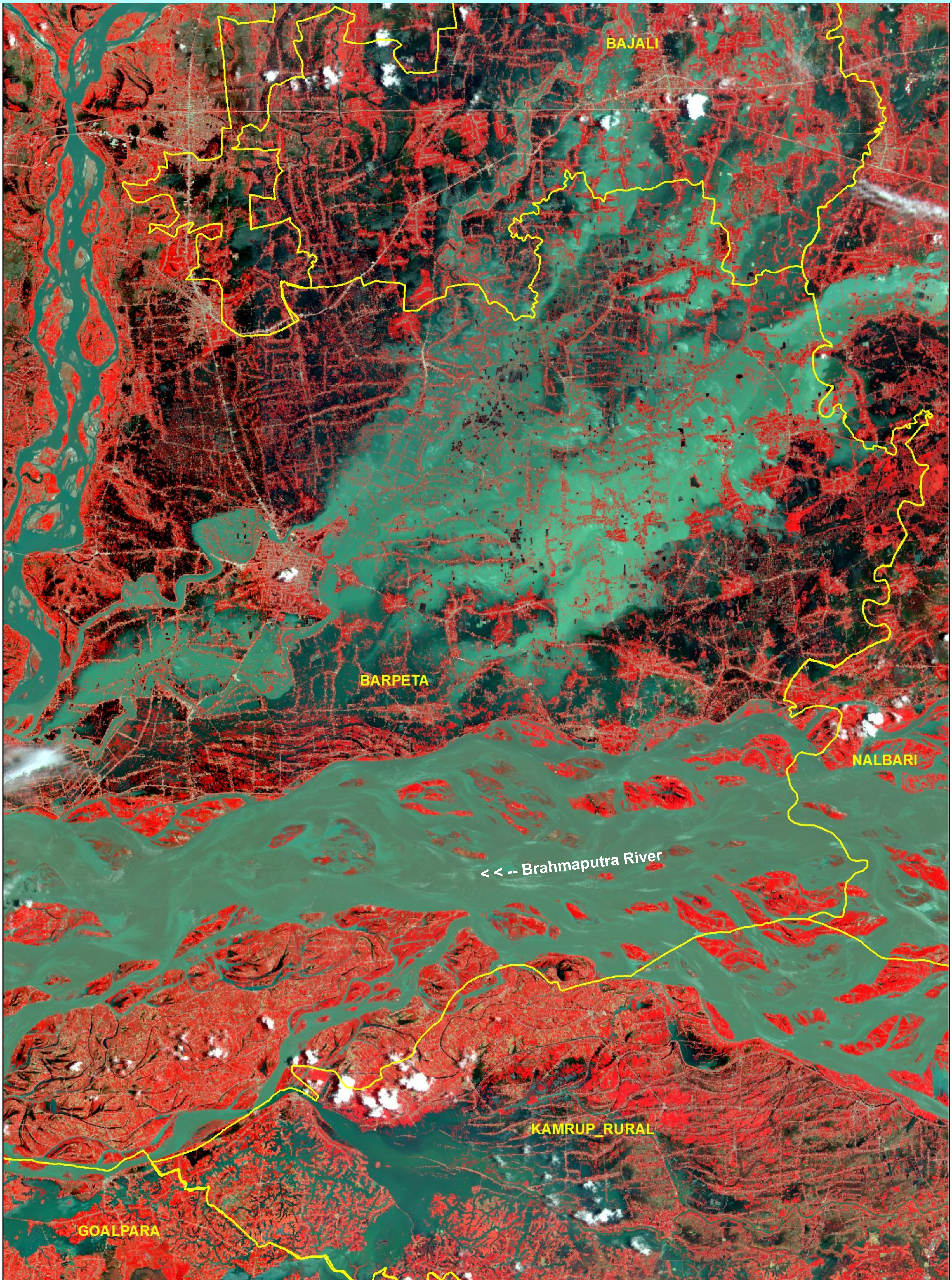

BAKSA
TAMULPUR
UDALGURI
DARRANG
NALBARI
Brahmaputra River
MORIGAON
KAMRUP_RURAL
KAMRUP_METRO

Sentinel-1A; 25 Jun 2023


BISWANATH
MAJULI
JORHAT
Brahmaputra River
GOLAGHAT

RISAT-1A CRS; 18 Jun 2023

Floods-2023


BAJALI
BARPETA
NALBARI
< < -- Brahmaputra River
KAMRUP_RURAL
GOALPARA

Sentinel-2B; 25 June 2023

District-wise

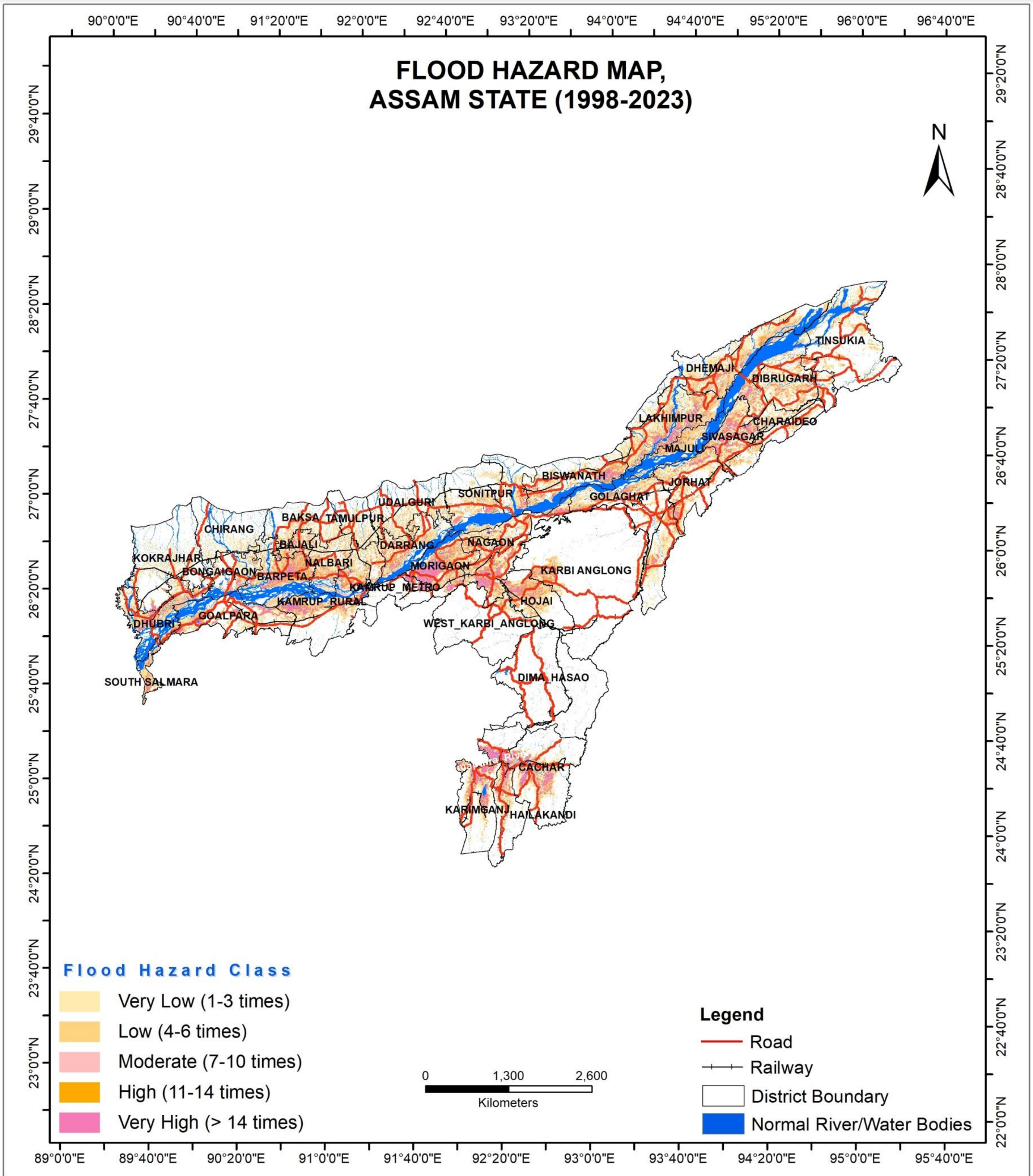
Flood Hazard Map

&

Overview of River water Levels, Annual Flood affected Area

(1998-2023)

and Land Use Land Cover Map

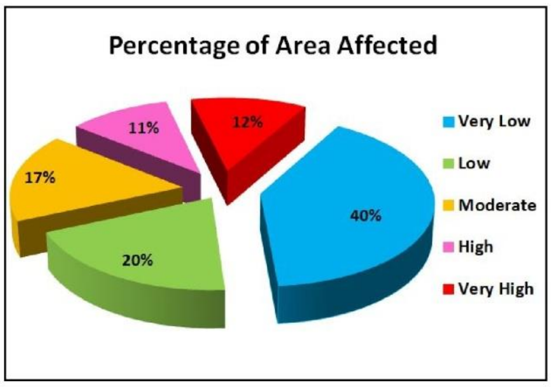


FLOOD HAZARD MAP, ASSAM STATE (1998-2023)

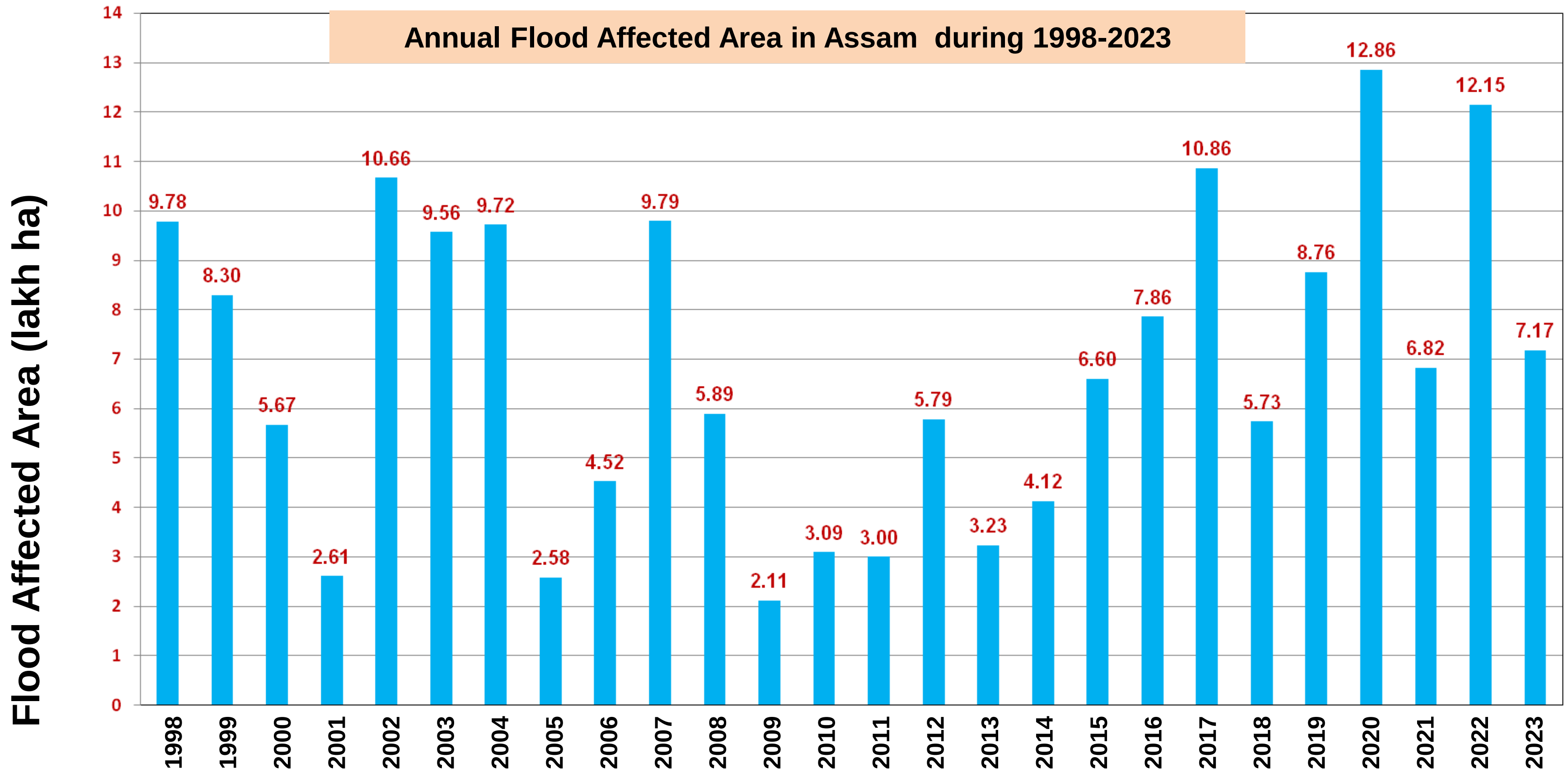
N
TINSUKIA
DHEMAJI
DIBRUGARH
LAKHIMPUR
CHARAIDEO
SIVASAGAR
MAJULI
BISWANATH
JORHAT
SONITPUR
GOLAGHAT
UDALGURI
BAKSA
TAMULPUR
CHIRANG
BAJALI
DARRANG
NAGAON
KOKRAJHAR
NALBARI
MORIGAON
BONGAIGAON
BARPETA
KARBI ANGLONG
KAMRUP_METRO
KAMRUP_RURAL
HOJAI
DHUBRI
GOALPARA
WEST_KARBI_ANGLONG
SOUTH SALMARA
DIMA_HASAO
CACHAR
KARIMGANJ
HAILAKANDI
90°0'0"E
90°40'0"E
91°20'0"E
92°0'0"E
92°40'0"E
93°20'0"E
94°0'0"E
94°40'0"E
95°20'0"E
96°0'0"E
96°40'0"E
89°0'0"E
89°40'0"E
90°20'0"E
91°0'0"E
91°40'0"E
92°20'0"E
93°0'0"E
93°40'0"E
94°20'0"E
95°0'0"E
95°40'0"E
29°40'0"N
29°0'0"N
28°20'0"N
27°40'0"N
27°0'0"N
26°20'0"N
25°40'0"N
25°0'0"N
24°20'0"N
23°40'0"N
23°0'0"N
29°20'0"N
28°40'0"N
28°0'0"N
27°20'0"N
26°40'0"N
26°0'0"N
25°20'0"N
24°40'0"N
24°0'0"N
23°20'0"N
22°40'0"N
22°0'0"N
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
1,300
2,600
Kilometers
Legend
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map
N

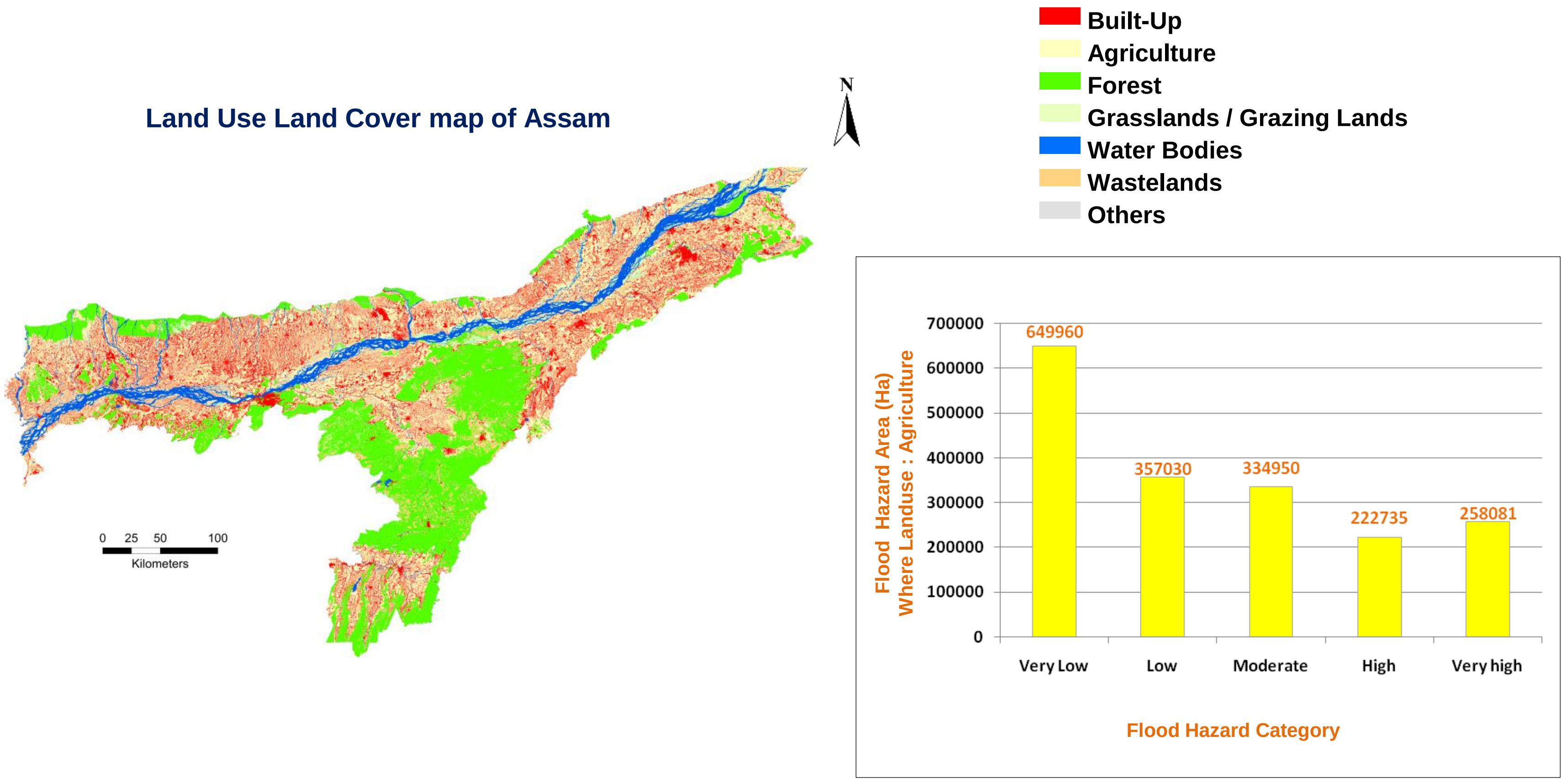
S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	1096239
2	Low	532891
3	Moderate	465765
4	High	286886
5	Very High	326522

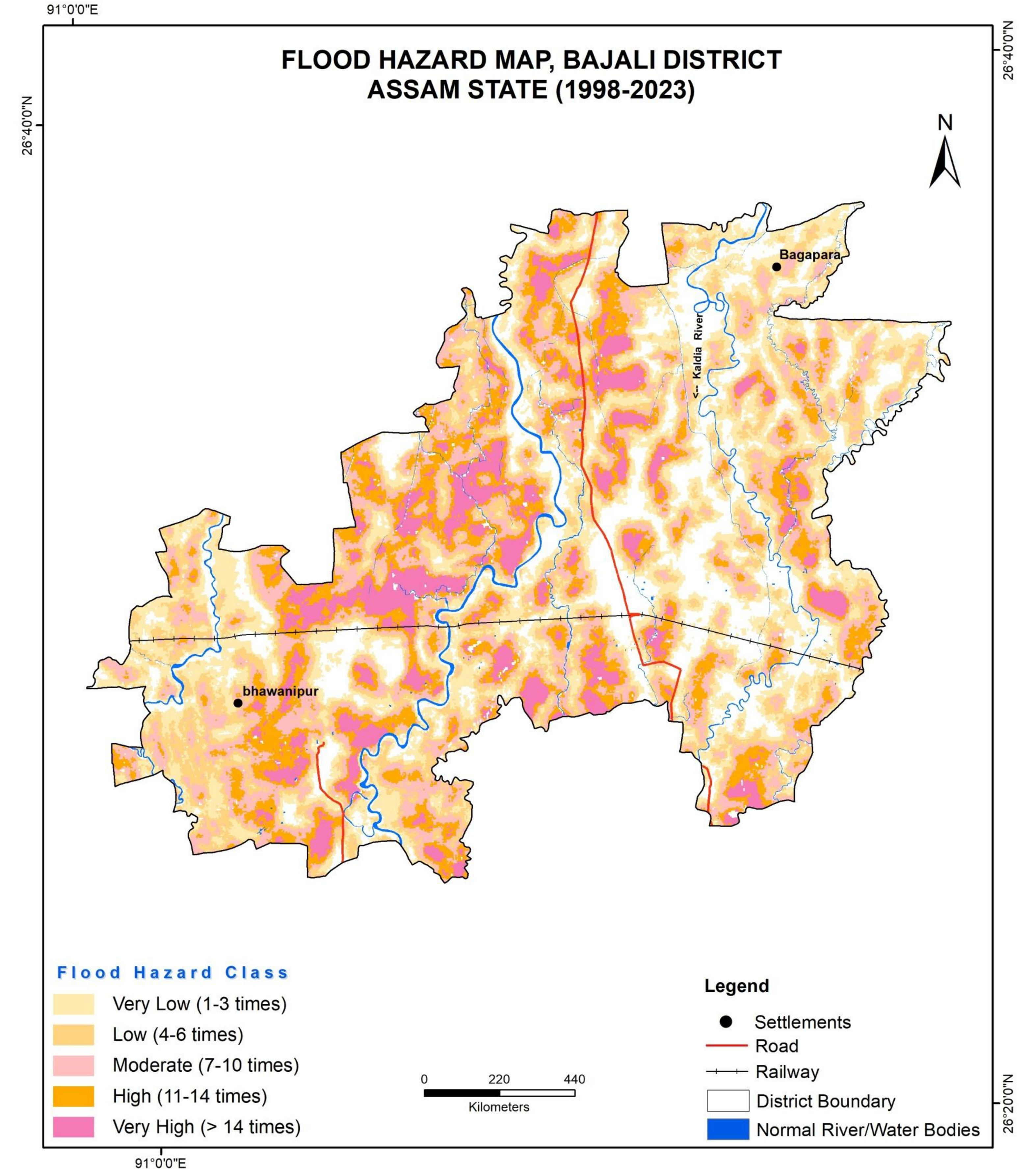


Prepared by
National Remote Sensing Centre (NRSC)
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037



Land Use Land Cover map of Assam


N
🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others
0 25 50 100
Kilometers
Flood Hazard Area (Ha)
Where Landuse : Agriculture
0
100000
200000
300000
400000
500000
600000
700000
Very Low 649960
Low 357030
Moderate 334950
High 222735
Very high 258081
Flood Hazard Category

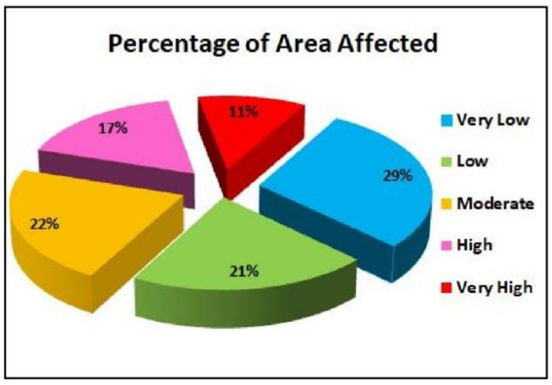


FLOOD HAZARD MAP, BAJALI DISTRICT ASSAM STATE (1998-2023)

91°0'0"E
26°40'0"N
26°40'0"N
26°20'0"N
91°0'0"E
N
Bagapara
<-- Kaldia River
bhawanipur
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0 220 440
Kilometers
Legend
● Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	9017
2	Low	6486
3	Moderate	6896
4	High	5358
5	Very High	3525



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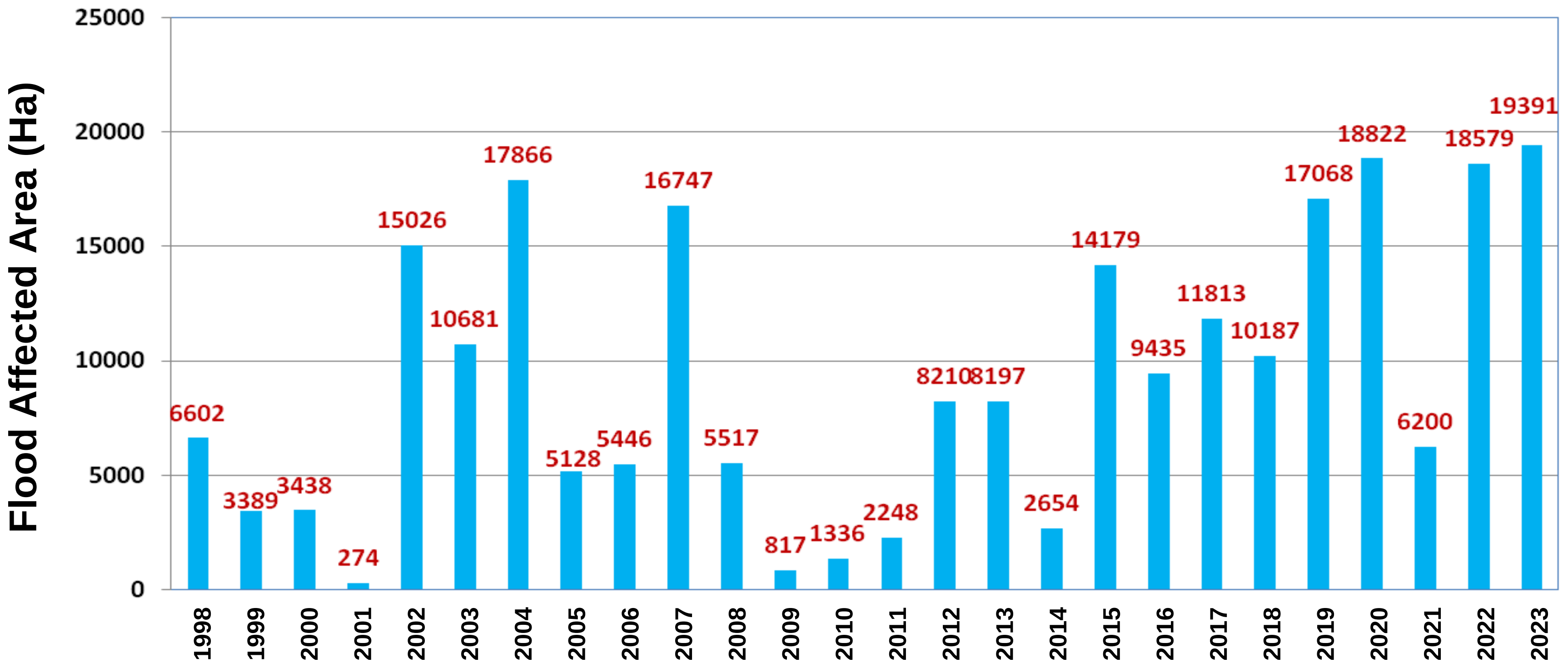
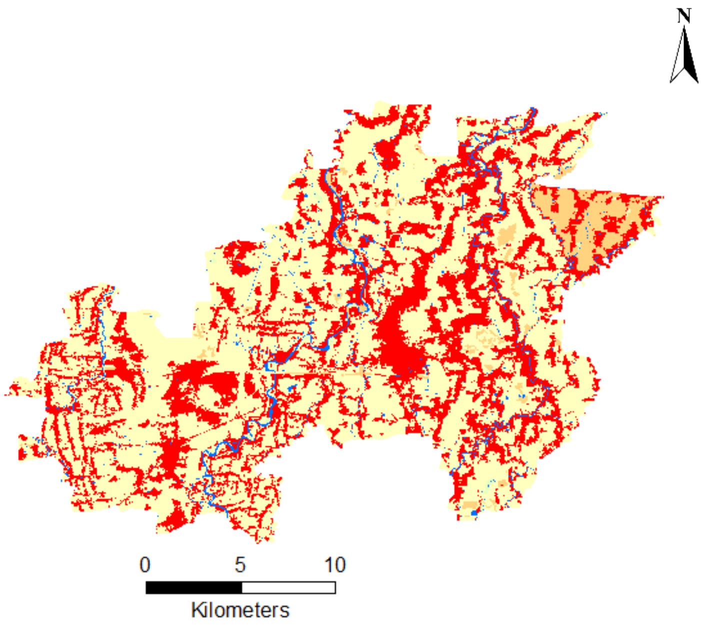
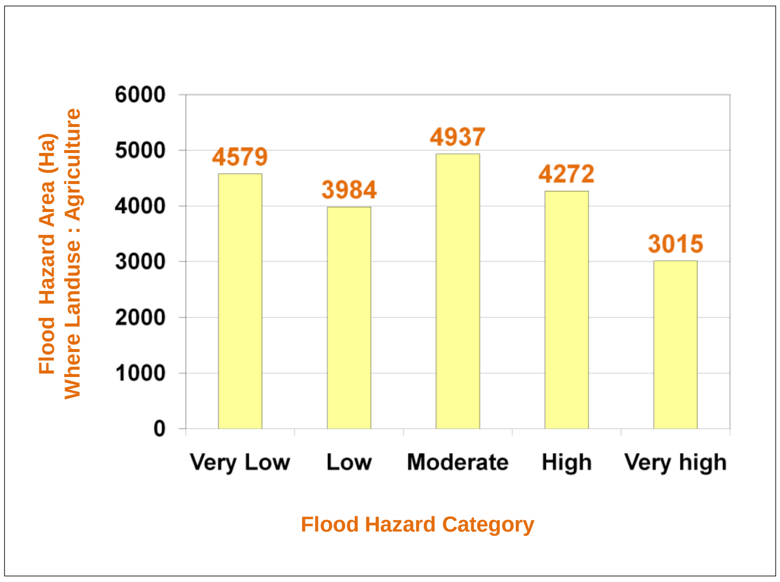
Annual Flood Affected Area in Bajali District during 1998-2023



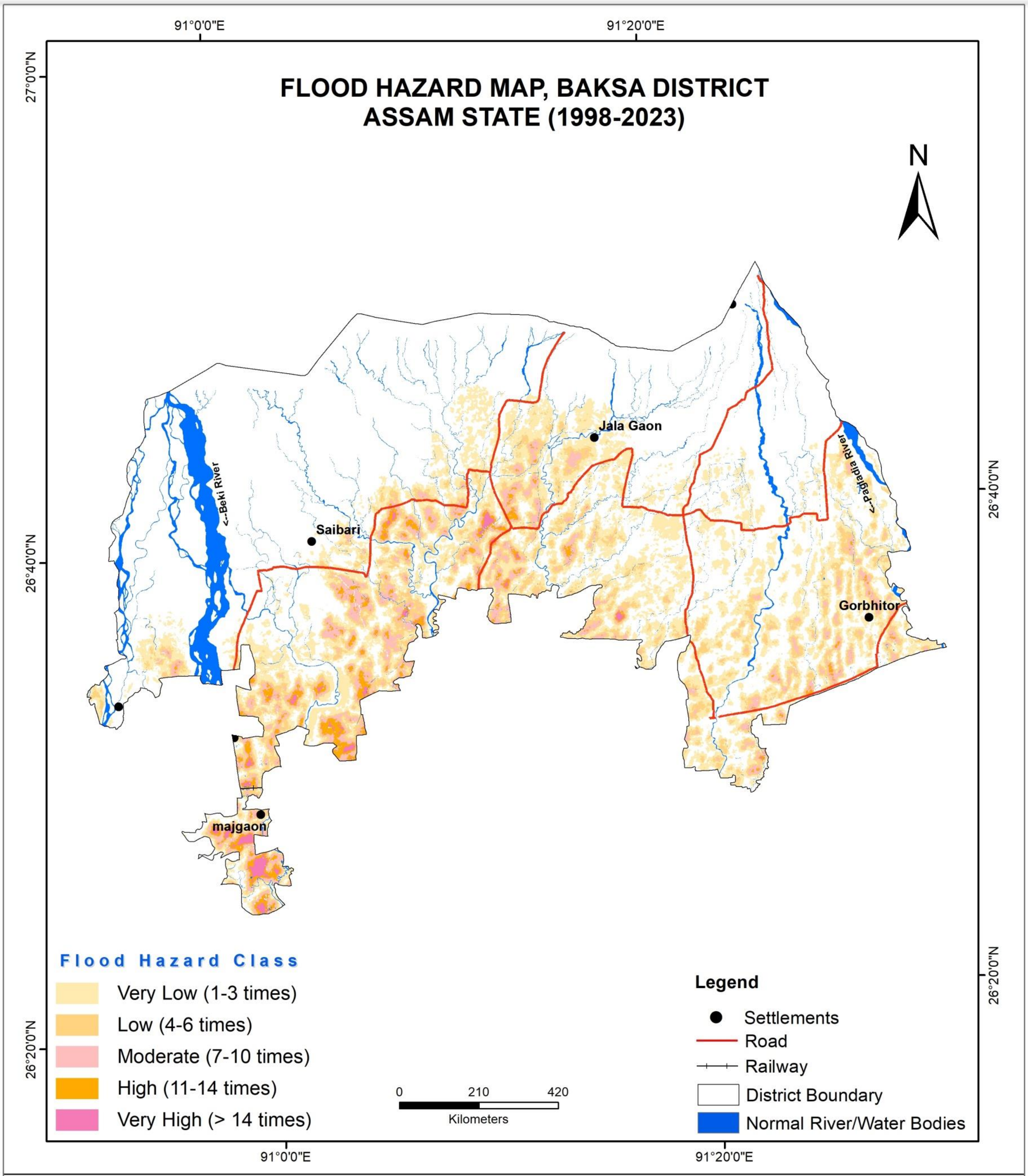
Land Use Land Cover map of Bajali District



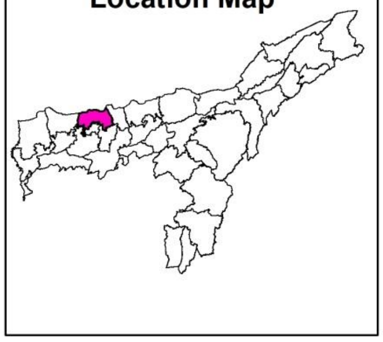
🟥 Built-Up
🟨 Agriculture
🟩 Forest
▨ Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others



FLOOD HAZARD MAP, BAKSA DISTRICT
ASSAM STATE (1998-2023)

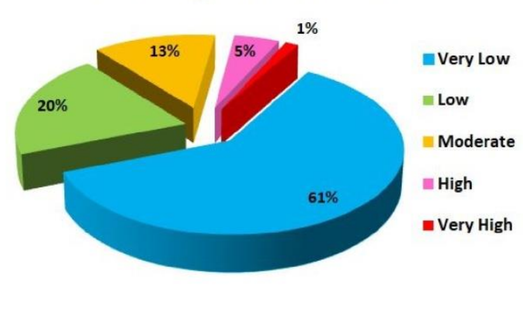

91°0'0"E
91°20'0"E
27°0'0"N
26°40'0"N
26°20'0"N
N
Jala Gaon
Saibari
Gorbhitor
majgaon
<--Beki River
<--Pagladia River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
210
420
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	29948
2	Low	9931
3	Moderate	6316
4	High	2355
5	Very High	699

Percentage of Area Affected



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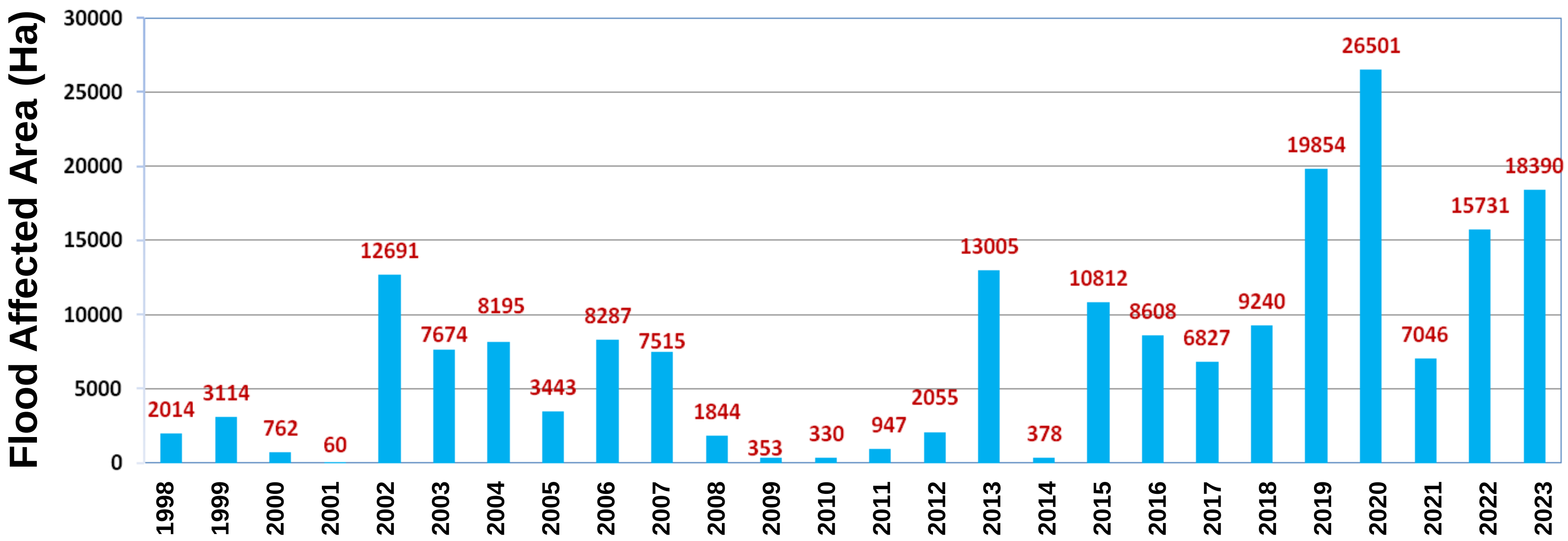
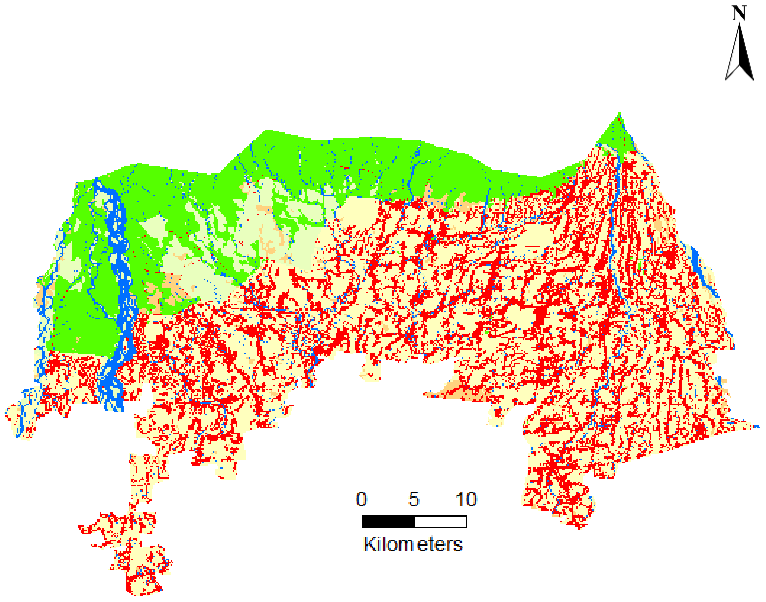
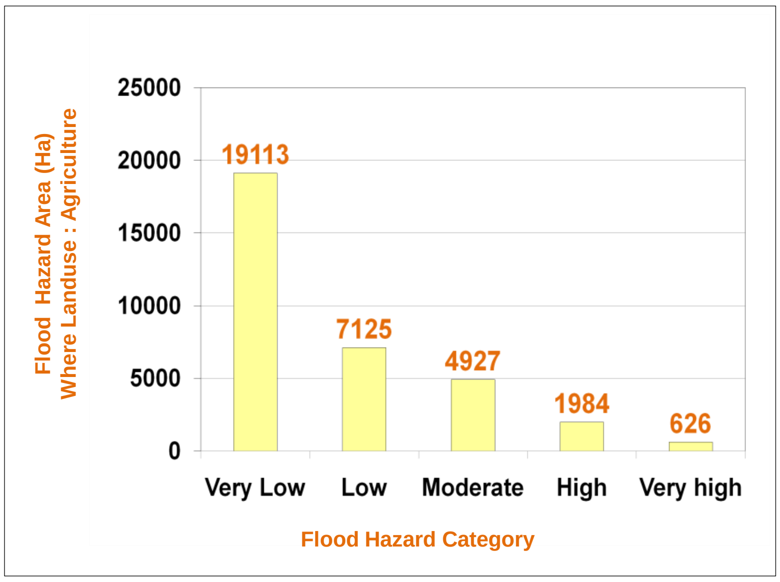
Annual Flood Affected Area in Baksa District during 1998-2023

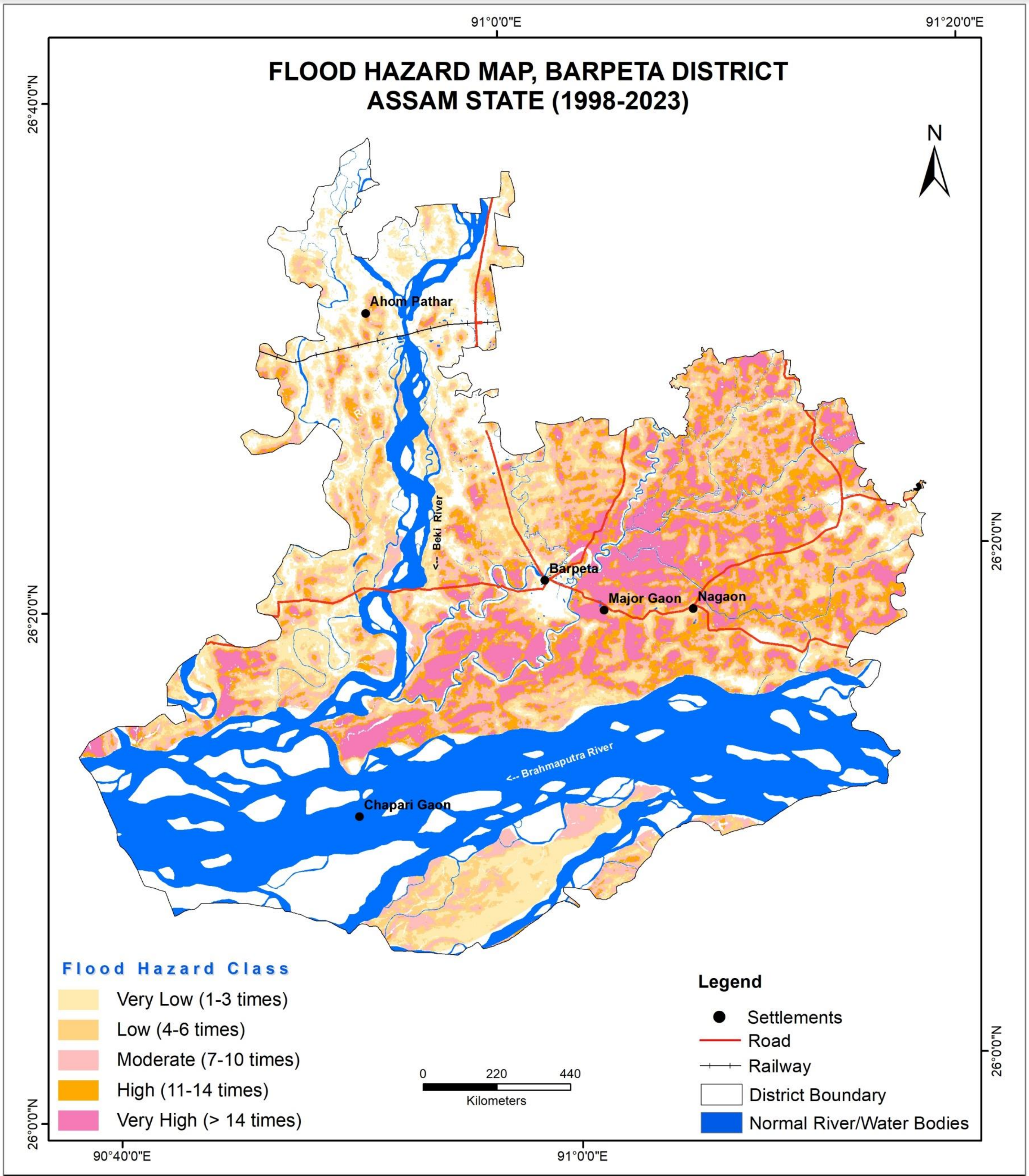


Land Use Land Cover map of Baksa District



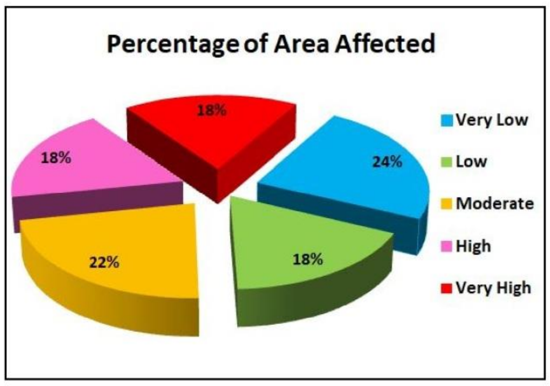
🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others




FLOOD HAZARD MAP, BARPETA DISTRICT
ASSAM STATE (1998-2023)
91°0'0"E
91°20'0"E
90°40'0"E
26°40'0"N
26°20'0"N
26°0'0"N
N
Ahom Pathar
<-- Beki River
Barpeta
Major Gaon
Nagaon
<-- Brahmaputra River
Chapari Gaon
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	23928
2	Low	17624
3	Moderate	22666
4	High	18451
5	Very High	18379



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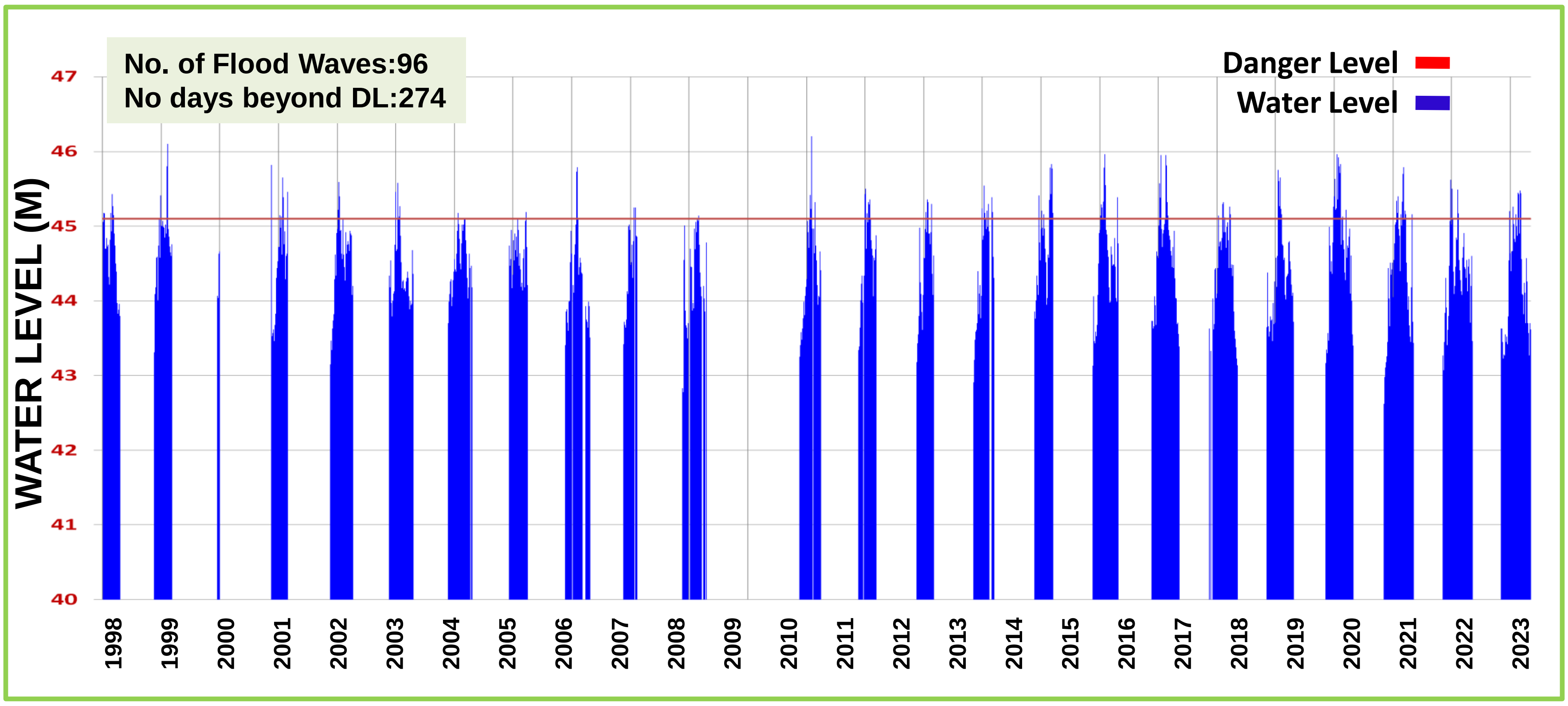
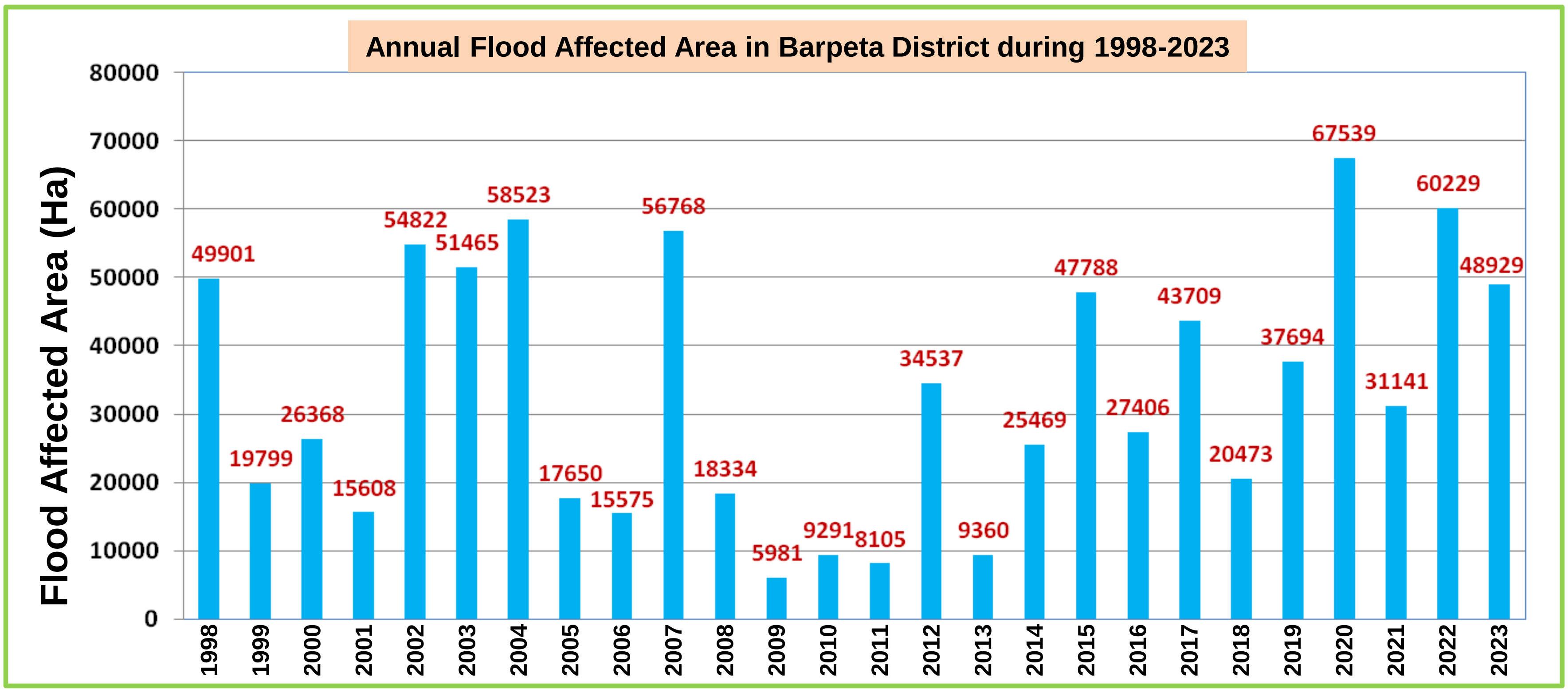
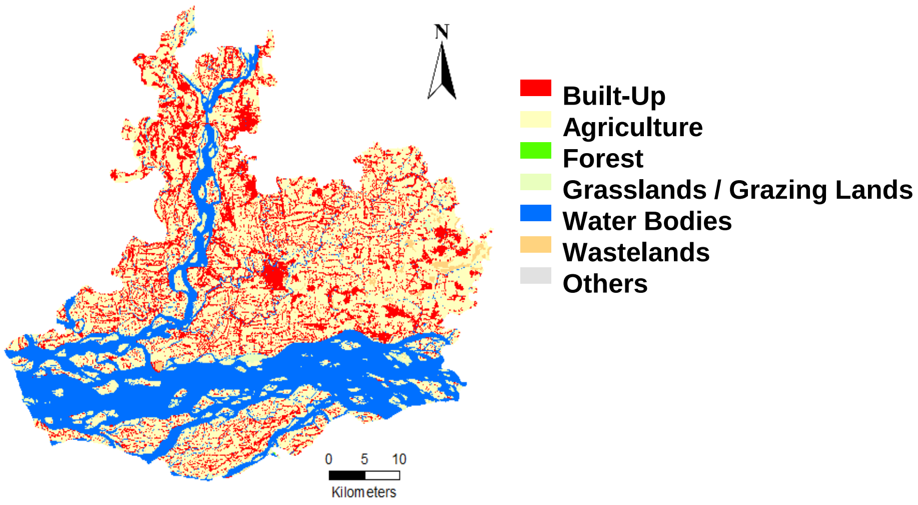
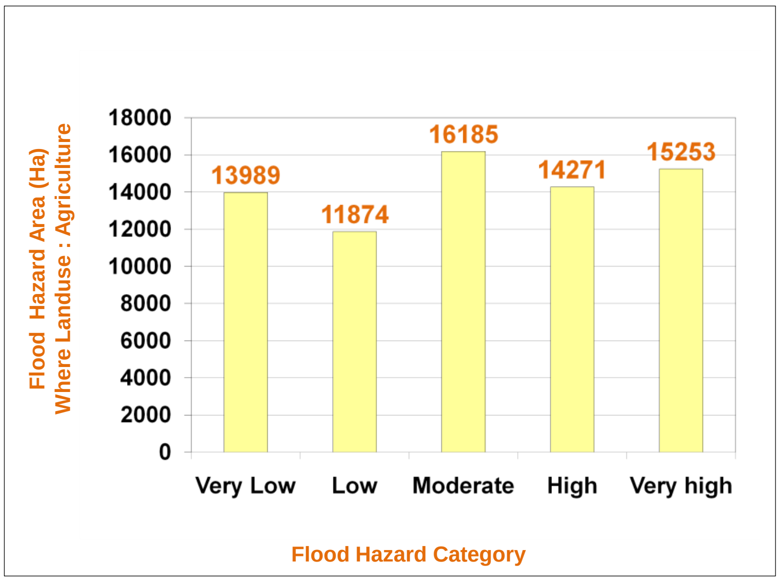


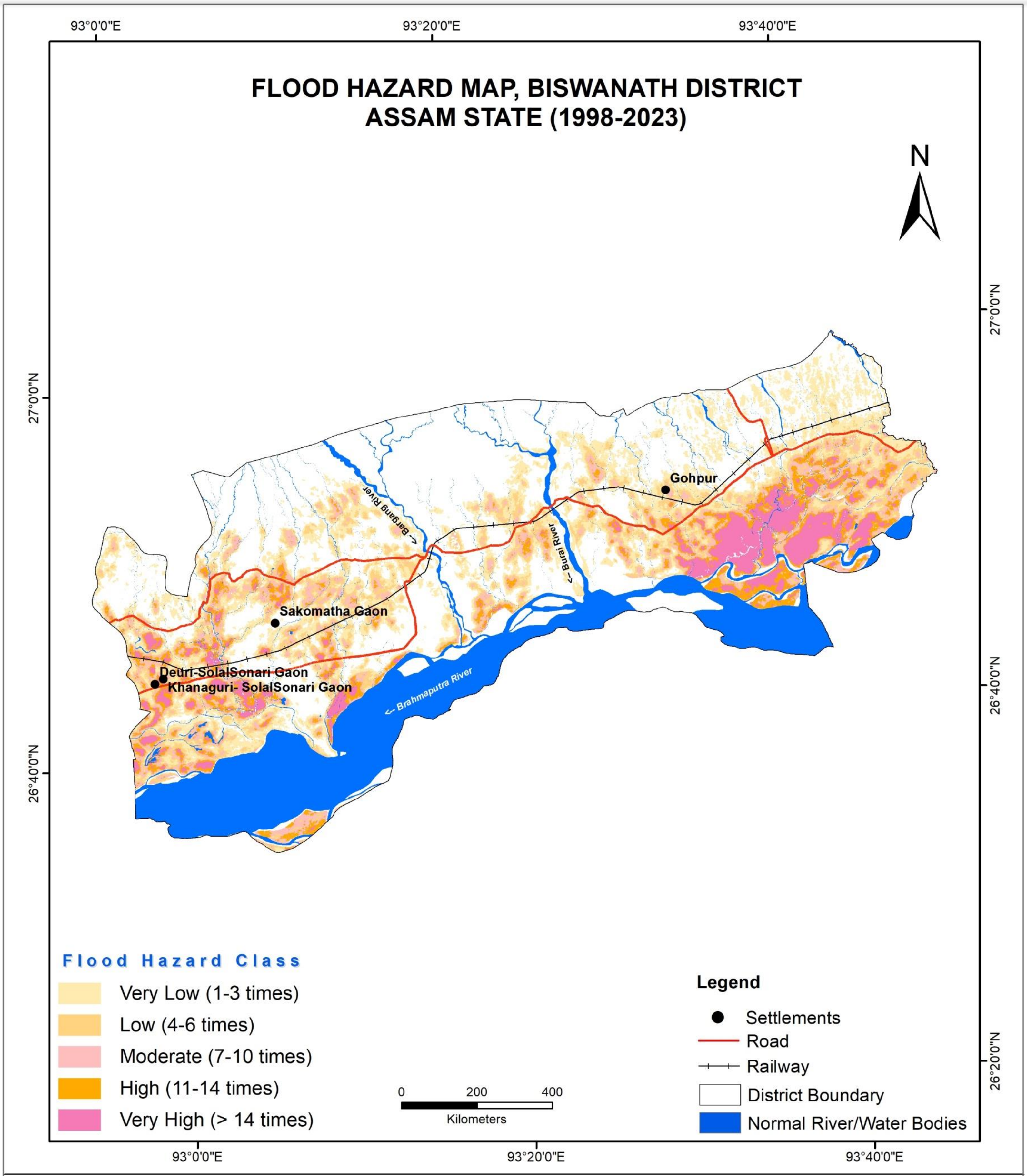
Water Levels at Rd. Bridge(Barpeta) Gauge Station during 1998-2023 (May-Oct)



Land Use Land Cover map of Barpeta District


N
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others
0
5
10
Kilometers



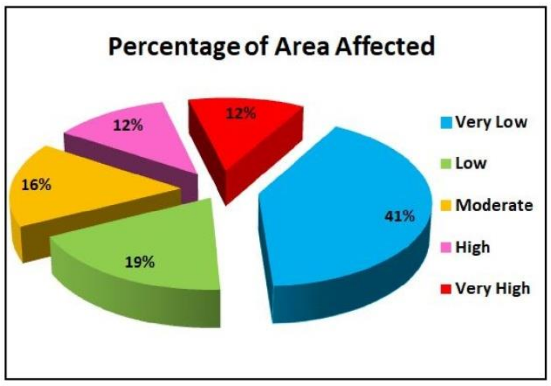


FLOOD HAZARD MAP, BISWANATH DISTRICT ASSAM STATE (1998-2023)

93°0'0"E
93°20'0"E
93°40'0"E
27°0'0"N
26°40'0"N
26°20'0"N
N
Gohpur
Sakomatha Gaon
Deuri-SolalSonari Gaon
Khanaguri- SolalSonari Gaon
<-- Barang River
<-- Burai River
<-- Brahmaputra River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
200
400
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

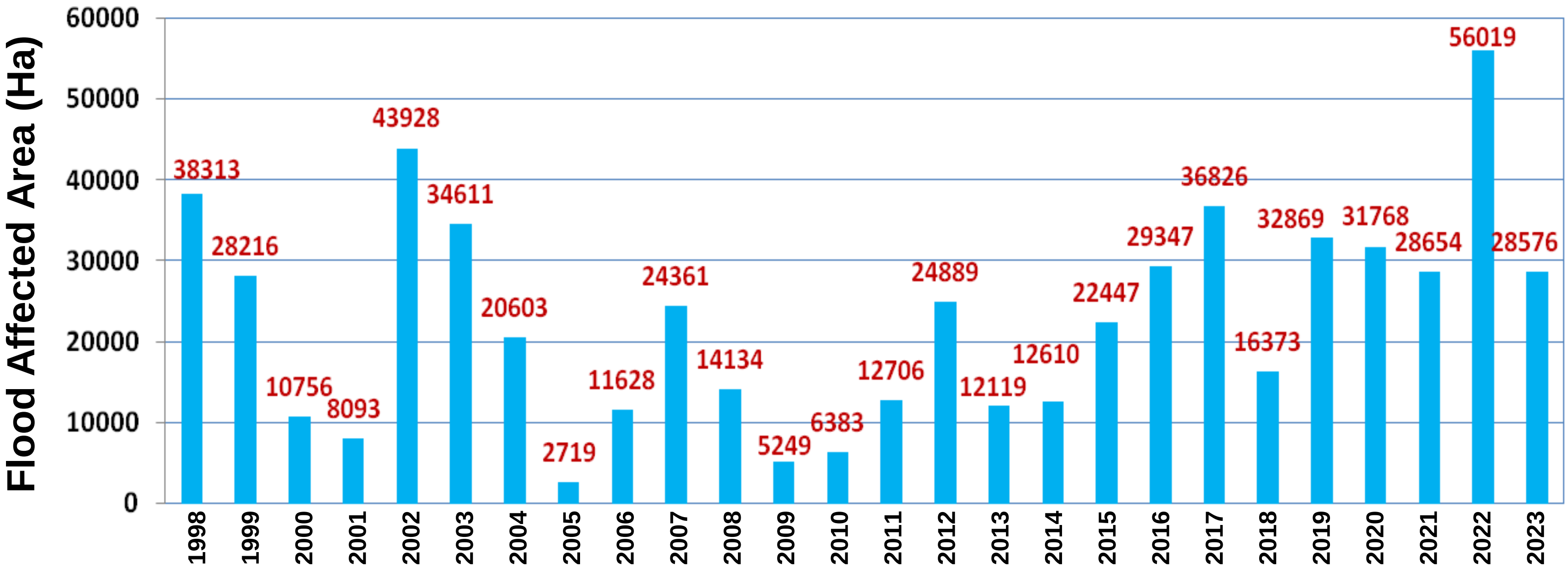
S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	36406
2	Low	16564
3	Moderate	14725
4	High	10749
5	Very High	10870



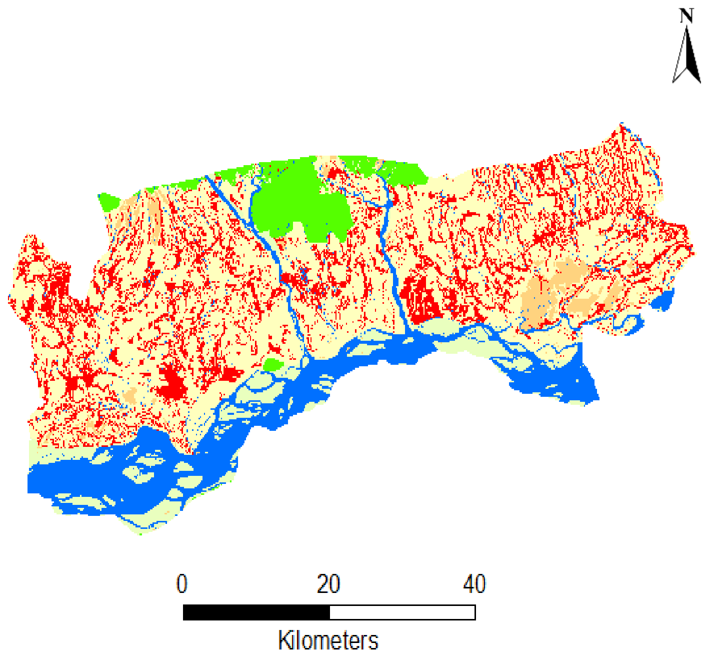
Percentage of Area Affected

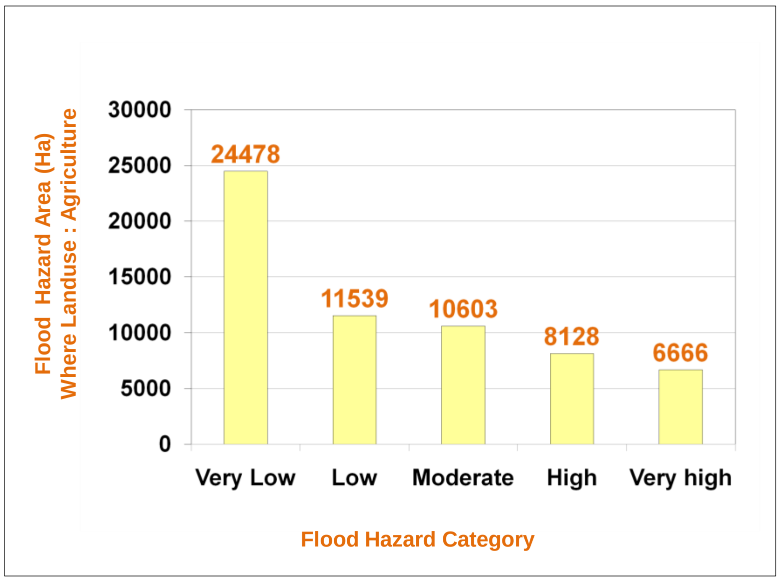
Prepared by
National Remote Sensing Centre (NRSC)
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

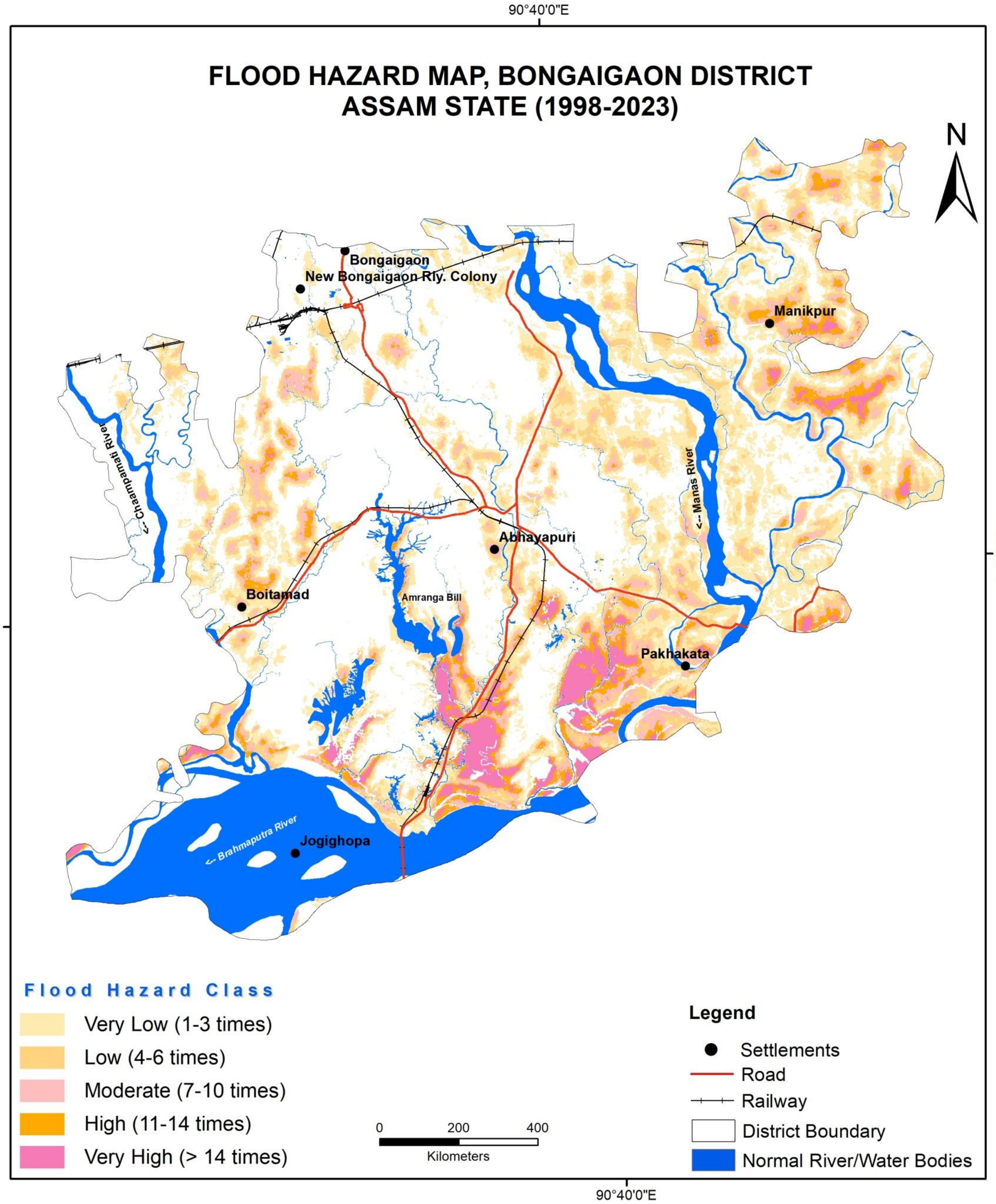
Annual Flood Affected Area in Biswanath District during 1998-2023



Land Use Land Cover map of Biswanath District


🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others
N
0
20
40
Kilometers

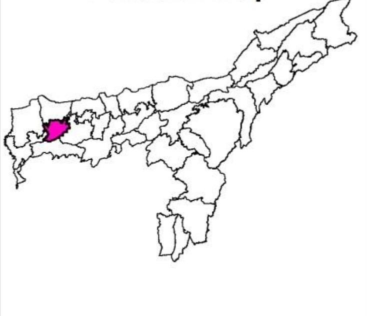




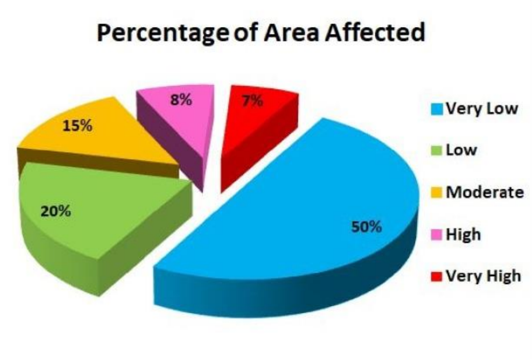
FLOOD HAZARD MAP, BONGAIGAON DISTRICT ASSAM STATE (1998-2023)

90°40'0"E
26°20'0"N
N
Bongaigaon
New Bongaigaon Rly. Colony
Manikpur
<-- Chaampamati River
<-- Manas River
Abhayapuri
Amranga Bill
Boitamad
Pakhakata
<-- Brahmaputra River
Jogighopa
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
200
400
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies
90°40'0"E

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	20980
2	Low	8509
3	Moderate	6077
4	High	3439
5	Very High	3015



Percentage of Area Affected

Prepared by

National Remote Sensing Centre (NRSC)
Indian Space Research Organisation (ISRO)
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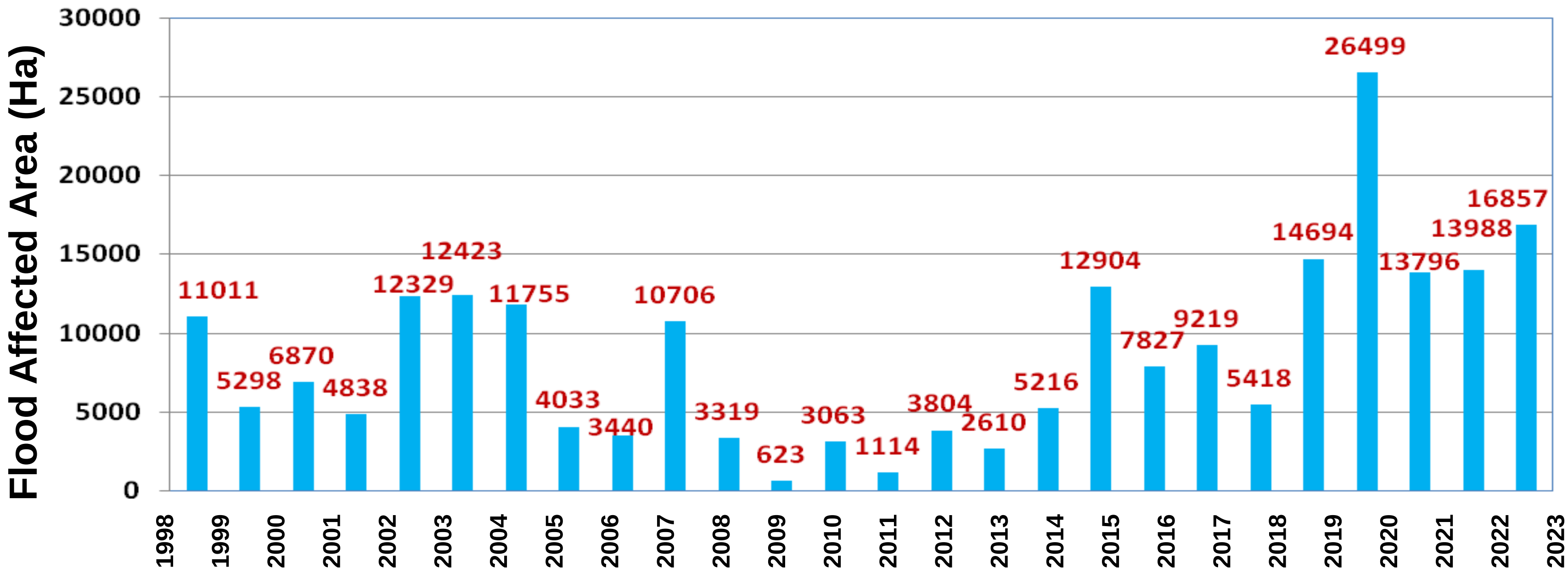
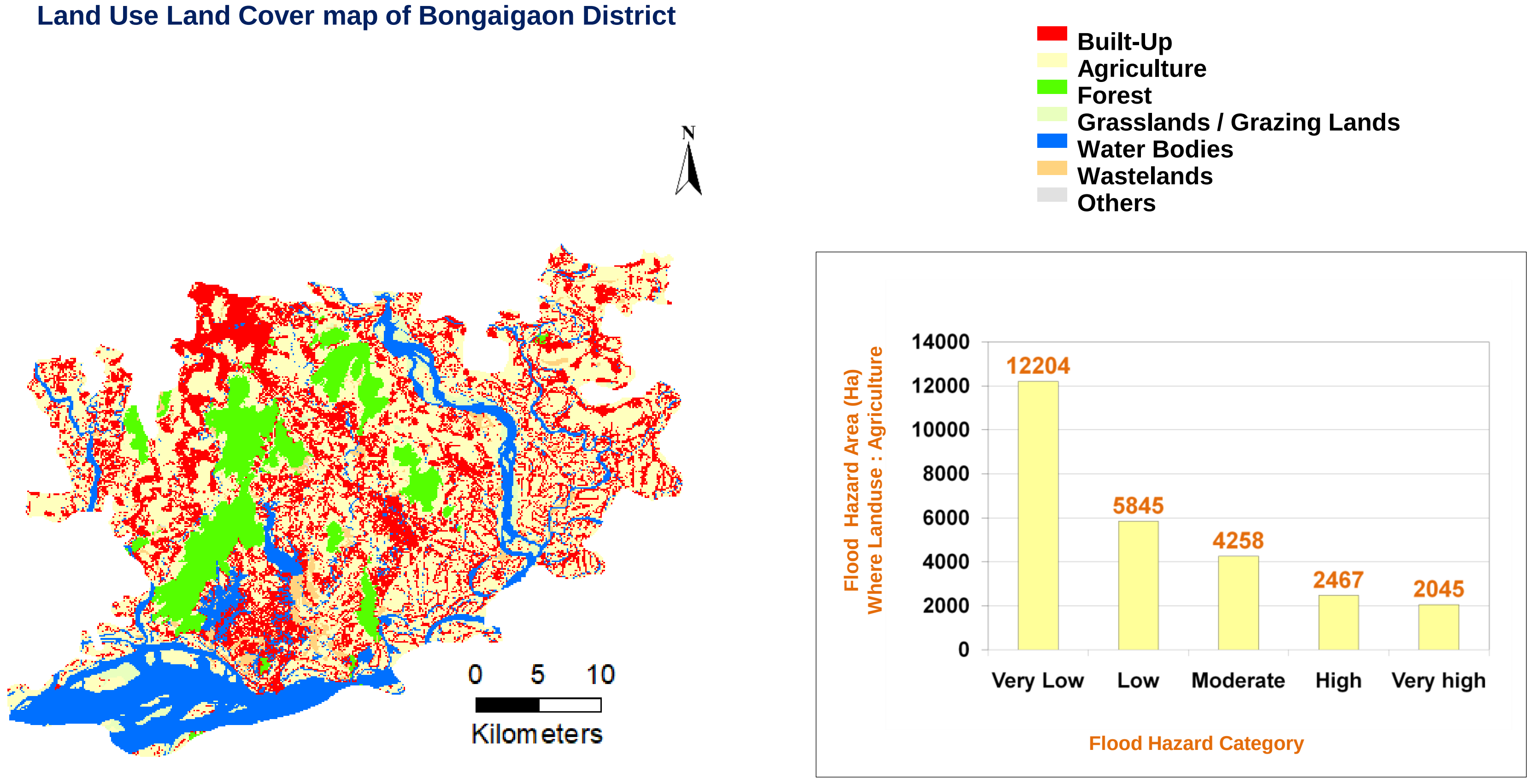
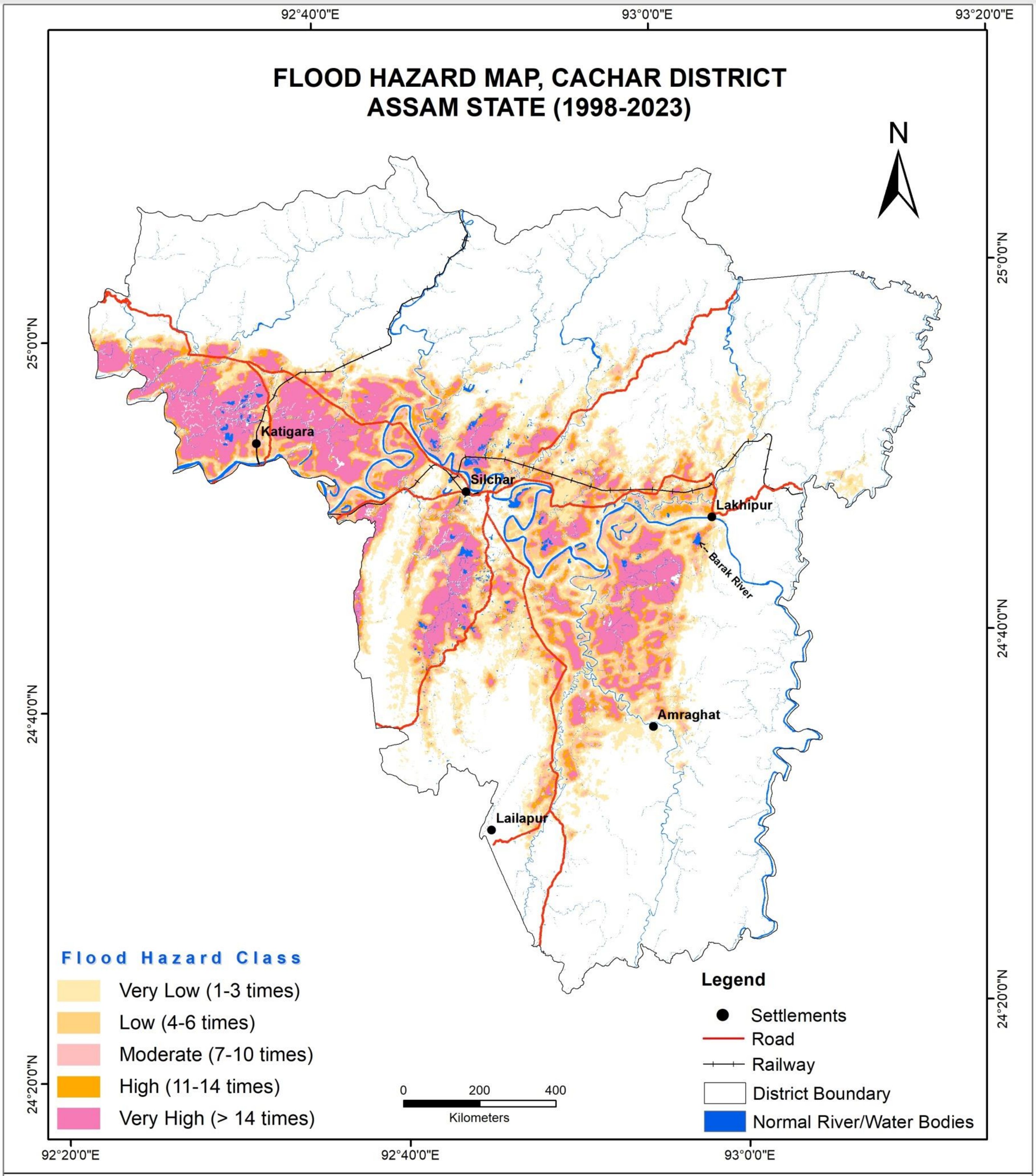
Balanagar, Hyderabad - 500 037

Annual Flood Affected Area in Bongaigaon District during 1998-2023



Land Use Land Cover map of Bongaigaon District


🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
Wastelands
Others
N
0 5 10
Kilometers
Flood Hazard Area (Ha)
Where Landuse : Agriculture
14000
12000
10000
8000
6000
4000
2000
0
12204
5845
4258
2467
2045
Very Low
Low
Moderate
High
Very high
Flood Hazard Category

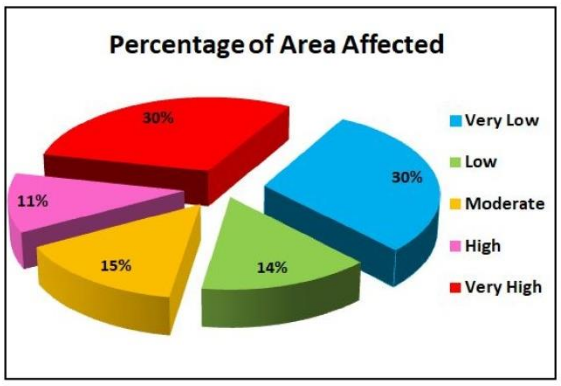


FLOOD HAZARD MAP, CACHAR DISTRICT
ASSAM STATE (1998-2023)

92°40'0"E
93°0'0"E
93°20'0"E
25°0'0"N
24°40'0"N
24°20'0"N
92°20'0"E
N
Katigara
Silchar
Lakhipur
Barak River
Amraghat
Lailapur
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
200
400
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

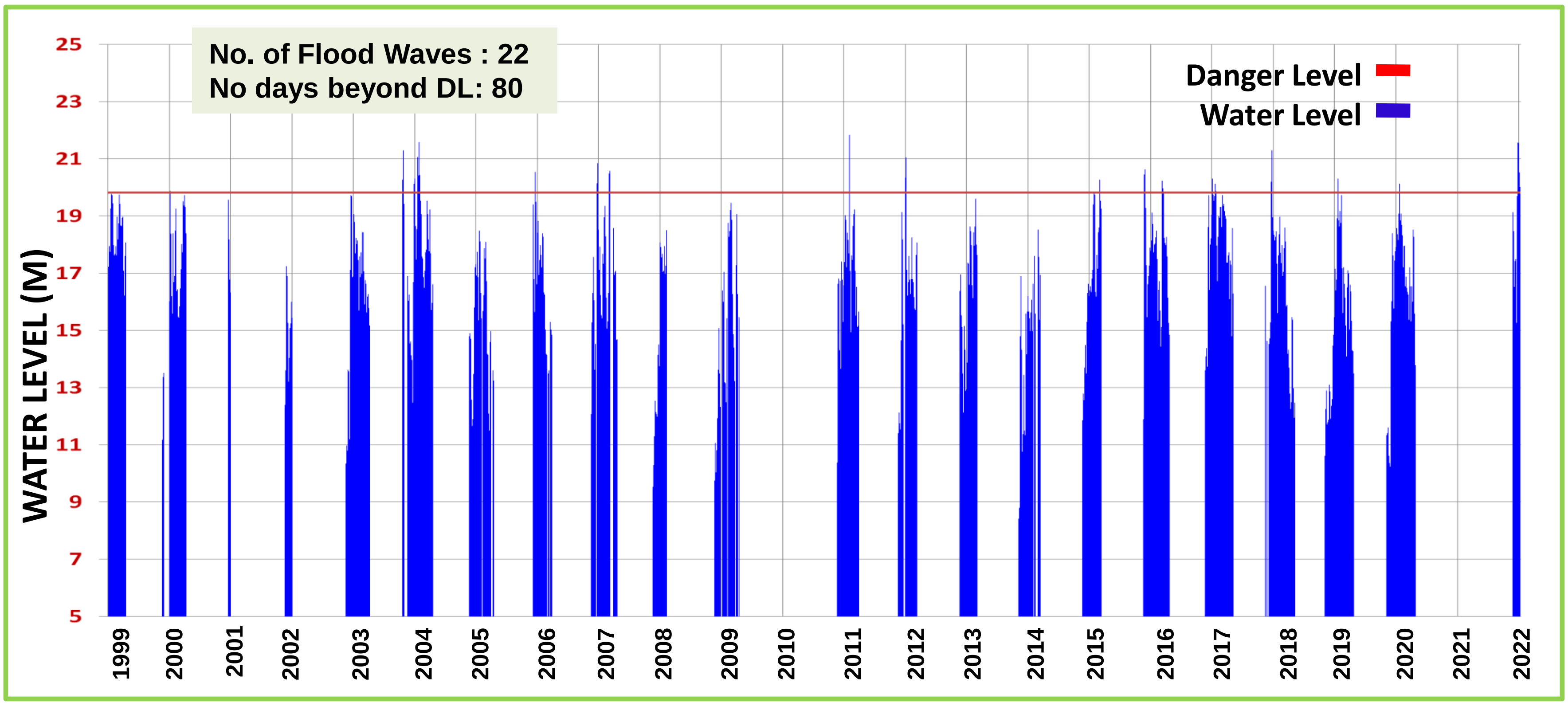
Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	34477
2	Low	16905
3	Moderate	17056
4	High	13251
5	Very High	34902

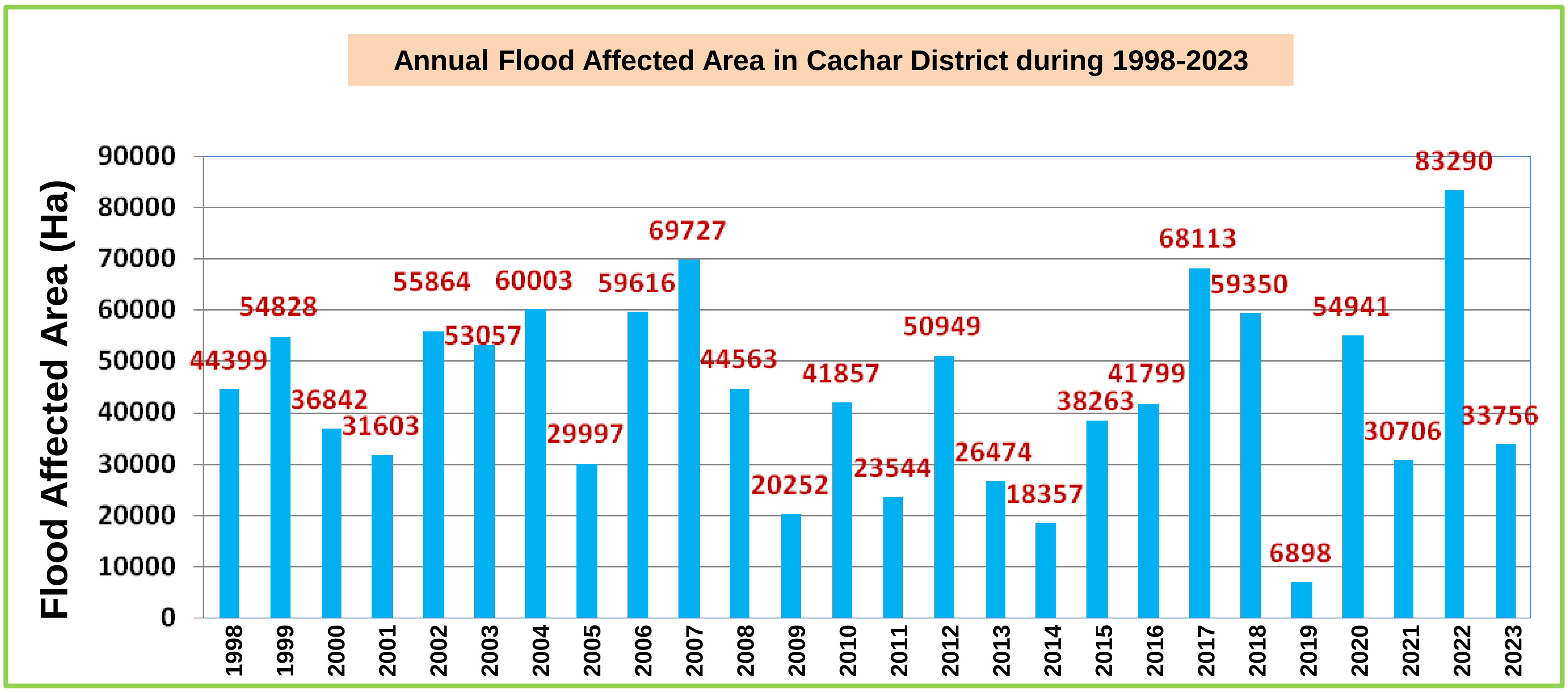


Percentage of Area Affected

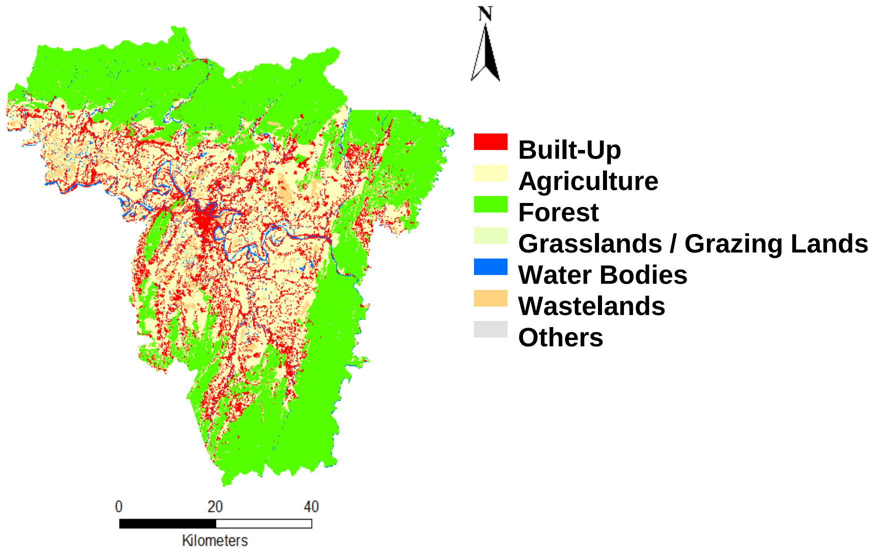
Prepared by
National Remote Sensing Centre (NRSC)
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

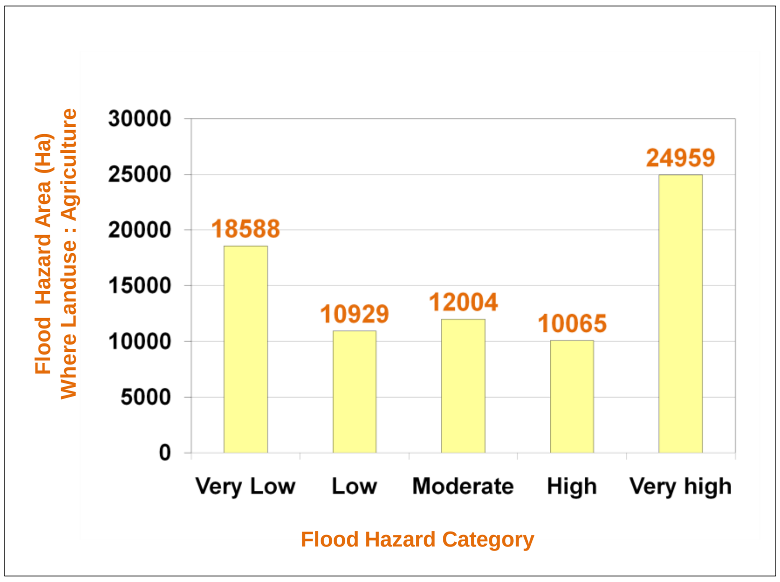


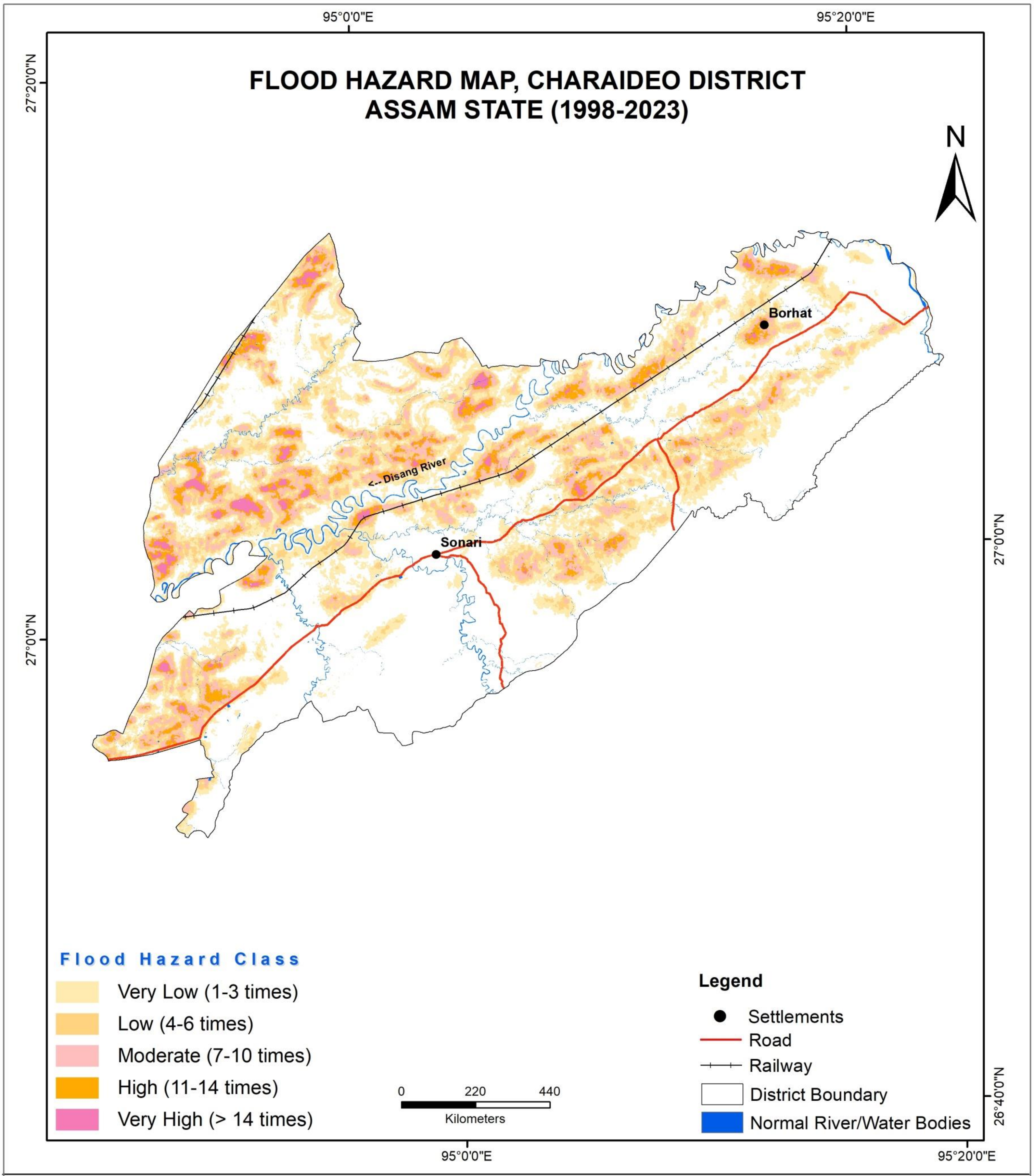
Water Levels at Ap ghat Gauge Station during 1998-2023 (May-Oct)


Annual Flood Affected Area in Cachar District during 1998-2023

Land Use Land Cover map of Cachar District


N
🟥 Built-Up
🟨 Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others
0
20
40
Kilometers



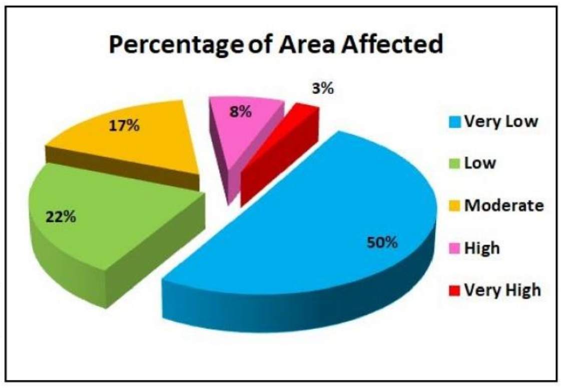


FLOOD HAZARD MAP, CHARAIDEO DISTRICT
ASSAM STATE (1998-2023)

95°0'0"E
95°20'0"E
27°20'0"N
27°0'0"N
27°0'0"N
26°40'0"N
N
Borhat
Sonari
<-- Disang River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
● Settlements
Road
Railway
District Boundary
Normal River/Water Bodies
95°0'0"E
95°20'0"E

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	23722
2	Low	10515
3	Moderate	8033
4	High	3610
5	Very High	1209



Percentage of Area Affected

Prepared by
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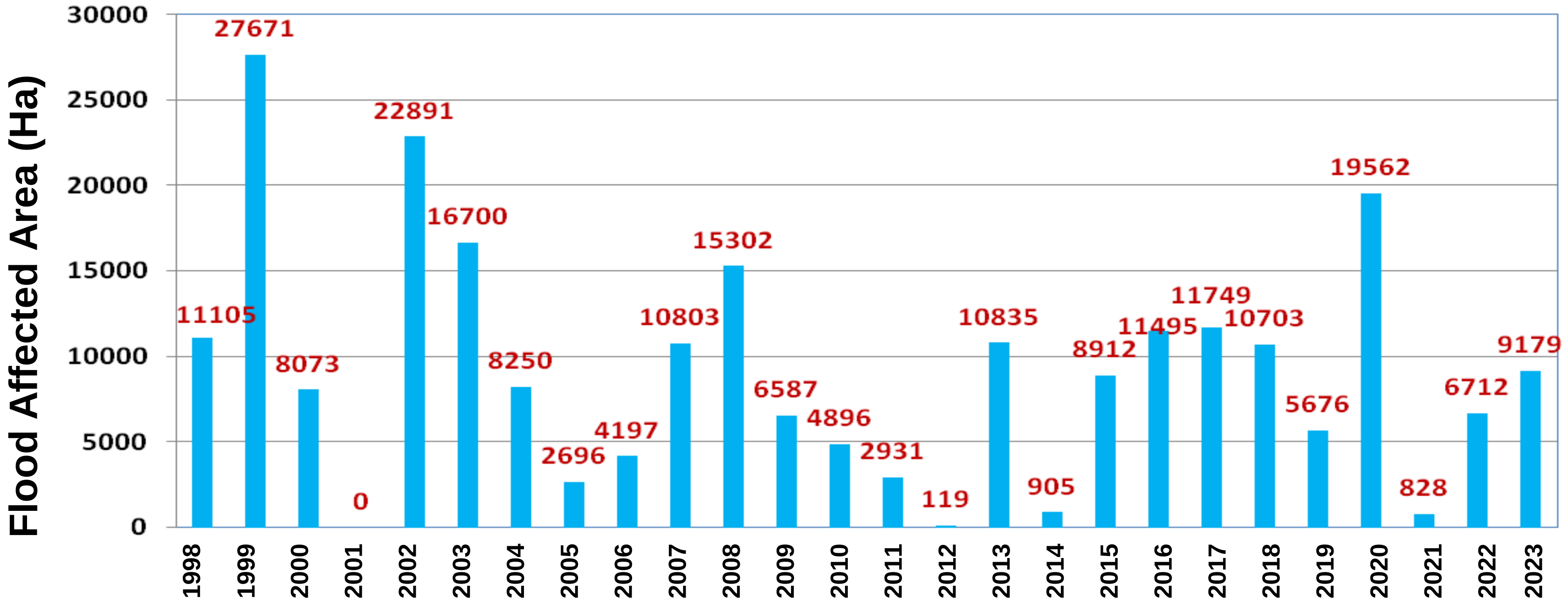
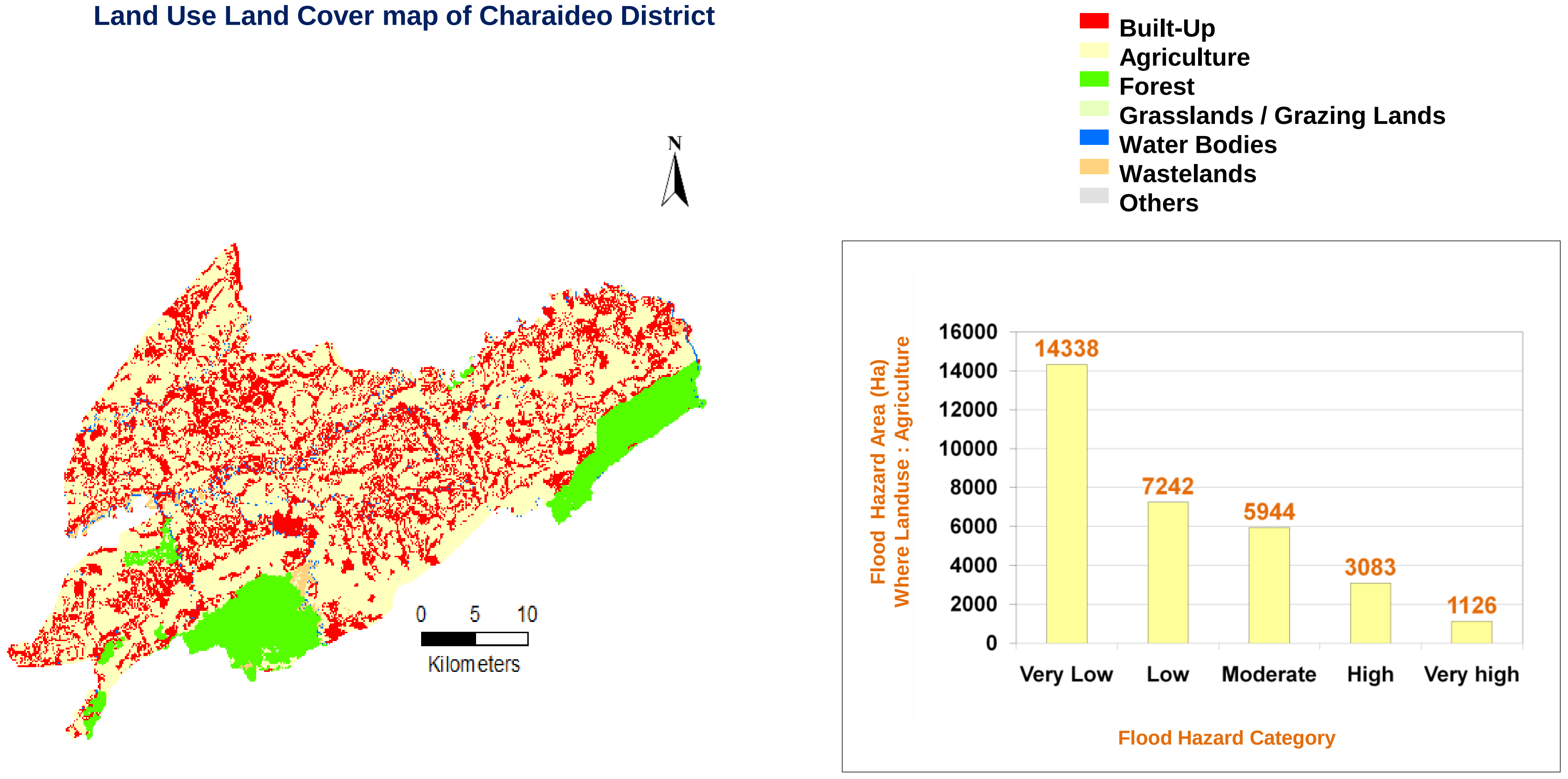
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

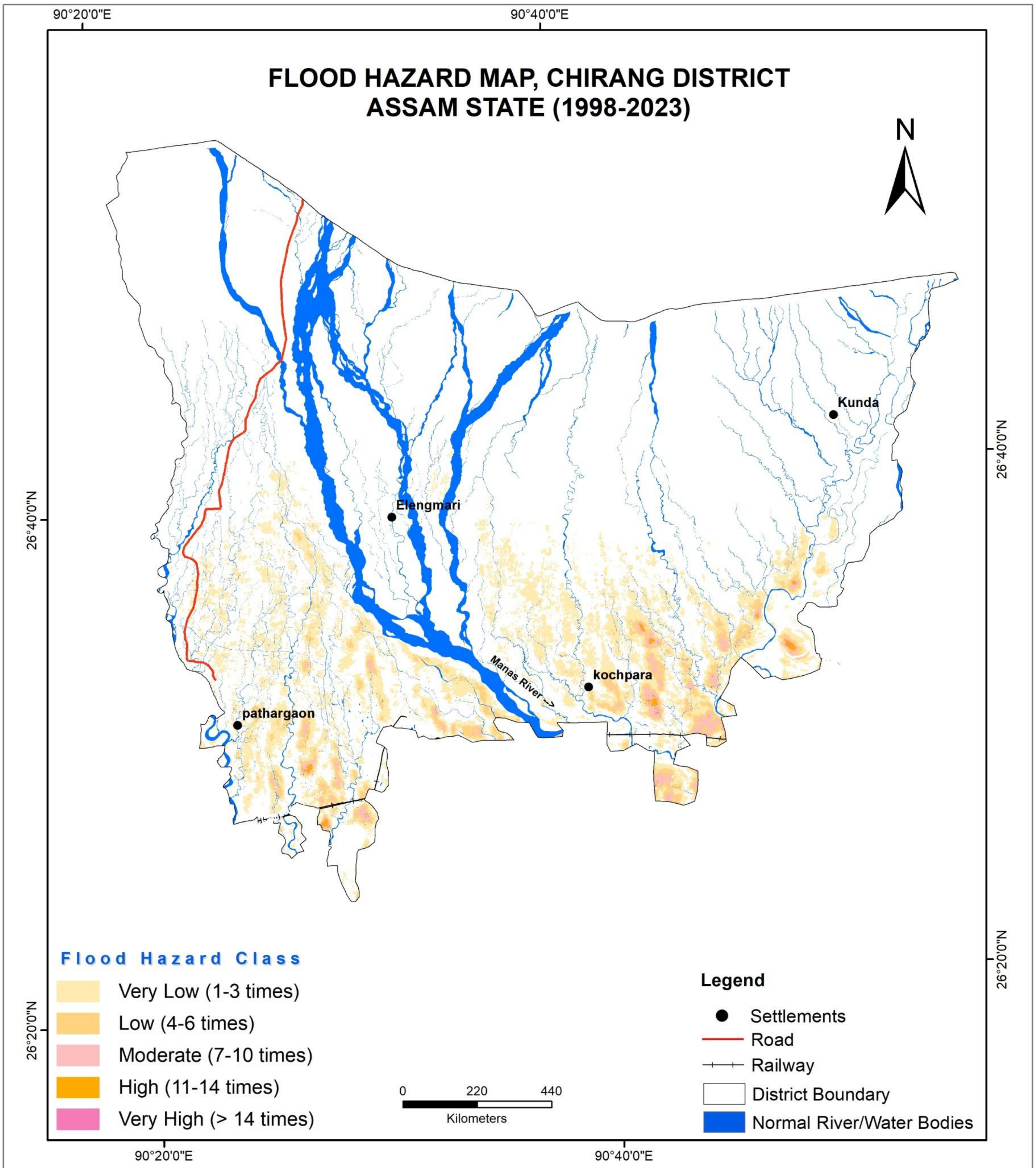
Annual Flood Affected Area in Charaideo District during 1998-2023



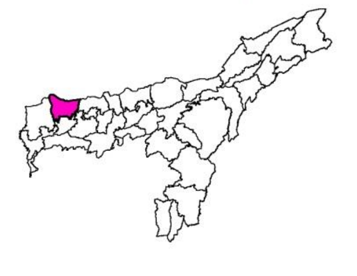
Land Use Land Cover map of Charaideo District


🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
Wastelands
Others
N
0 5 10
Kilometers
Flood Hazard Area (Ha)
Where Landuse : Agriculture
16000
14000
12000
10000
8000
6000
4000
2000
0
Very Low 14338
Low 7242
Moderate 5944
High 3083
Very high 1126
Flood Hazard Category

FLOOD HAZARD MAP, CHIRANG DISTRICT
ASSAM STATE (1998-2023)

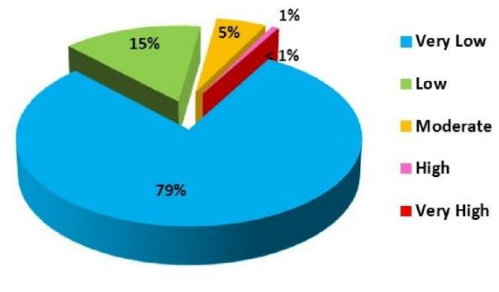

90°20'0"E
90°40'0"E
26°40'0"N
26°20'0"N
N
Kunda
Elengmari
Manas River -->
kochpara
pathargaon
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	18123
2	Low	3344
3	Moderate	1214
4	High	159
5	Very High	6

Percentage of Area Affected



Prepared by
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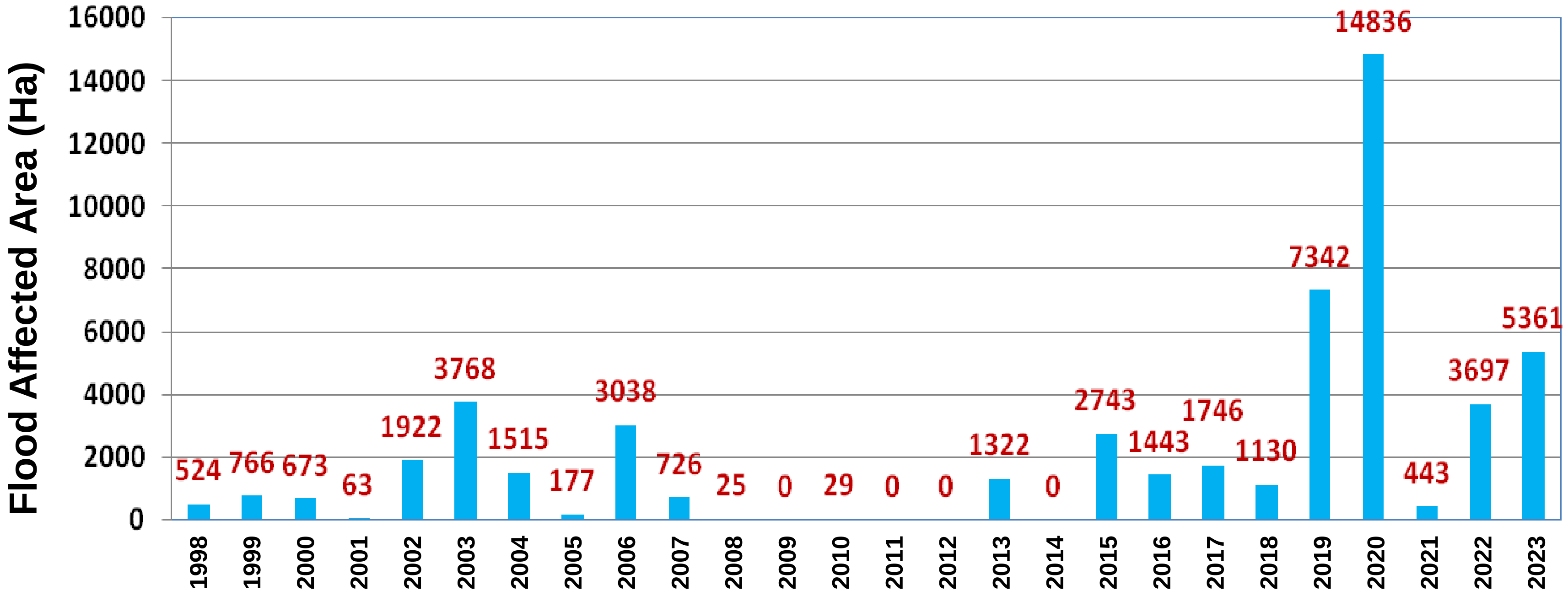
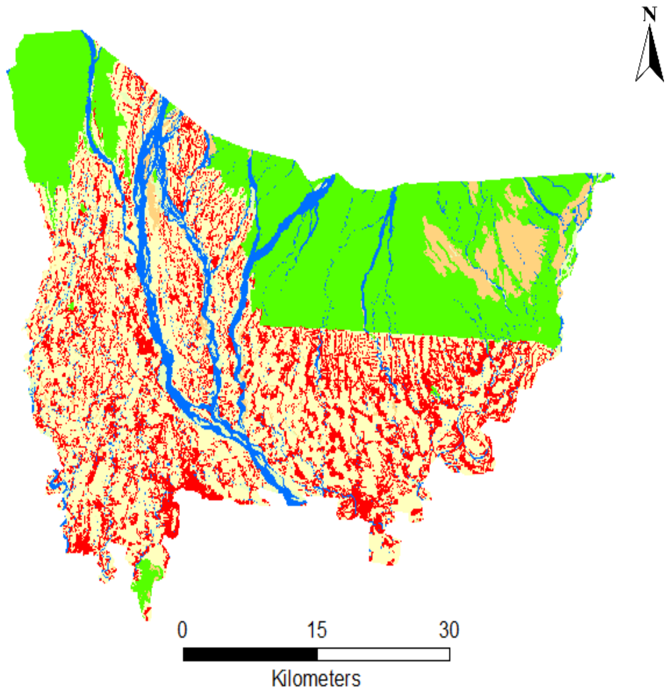
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

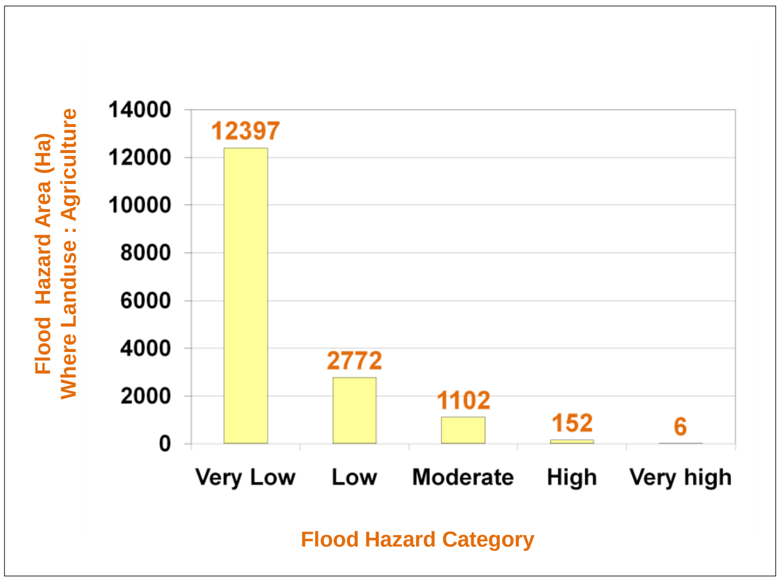
Annual Flood Affected Area in Chirang District during 1998-2023

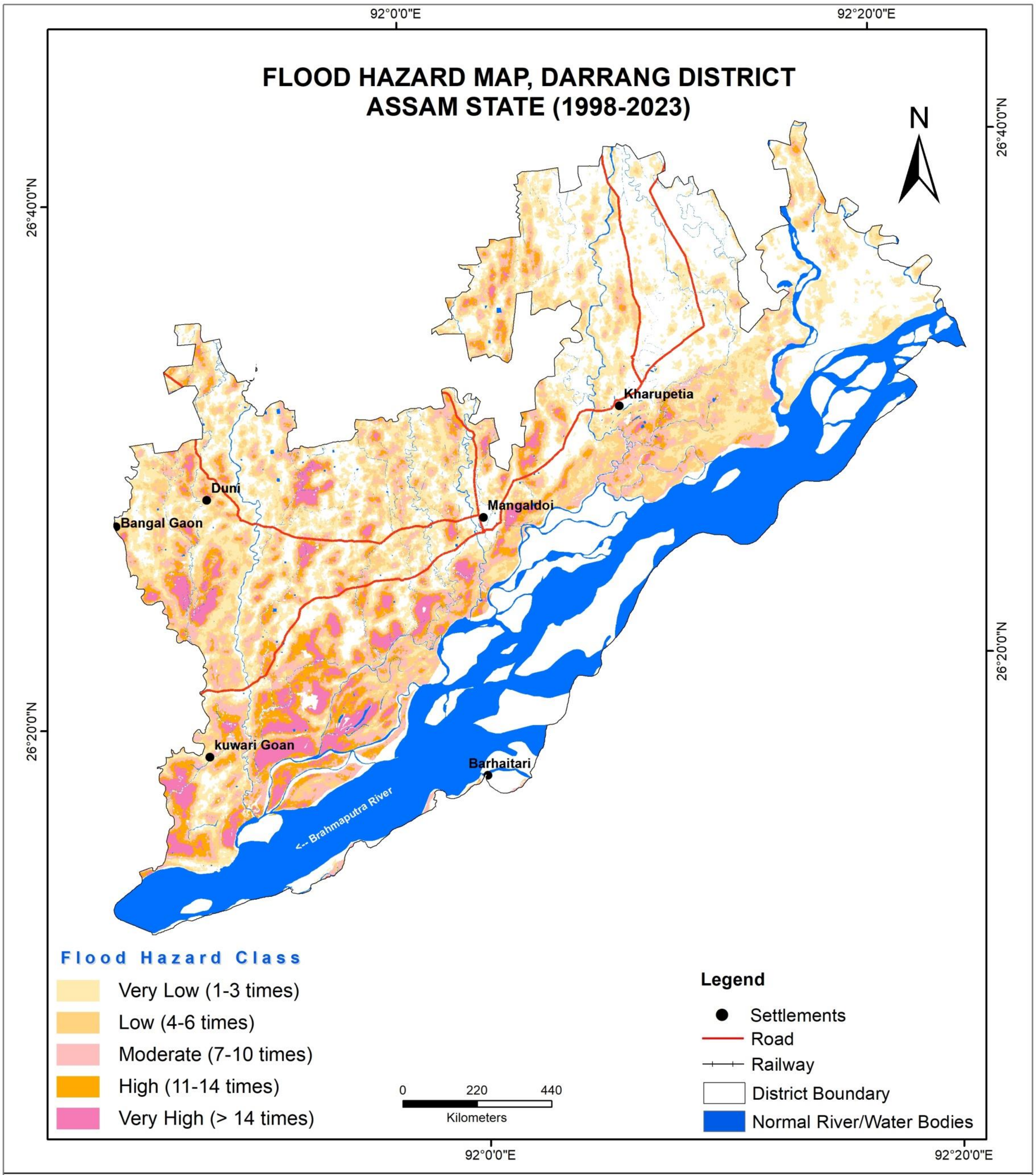


Land Use Land Cover map of Chirang District

🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others







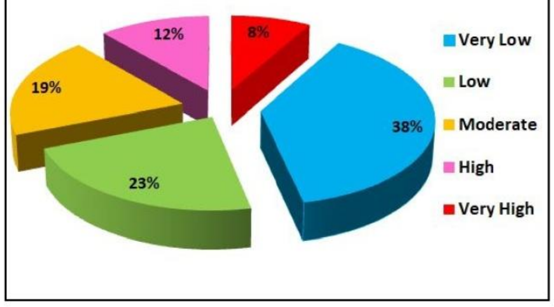
FLOOD HAZARD MAP, DARRANG DISTRICT ASSAM STATE (1998-2023)

92°0'0"E
92°20'0"E
26°40'0"N
26°20'0"N
N
Kharupetia
Duni
Mangaldoi
Bangal Gaon
kuwari Goan
Barhaitari
<-- Brahmaputra River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	28269
2	Low	16591
3	Moderate	14318
4	High	8476
5	Very High	6111

Percentage of Area Affected



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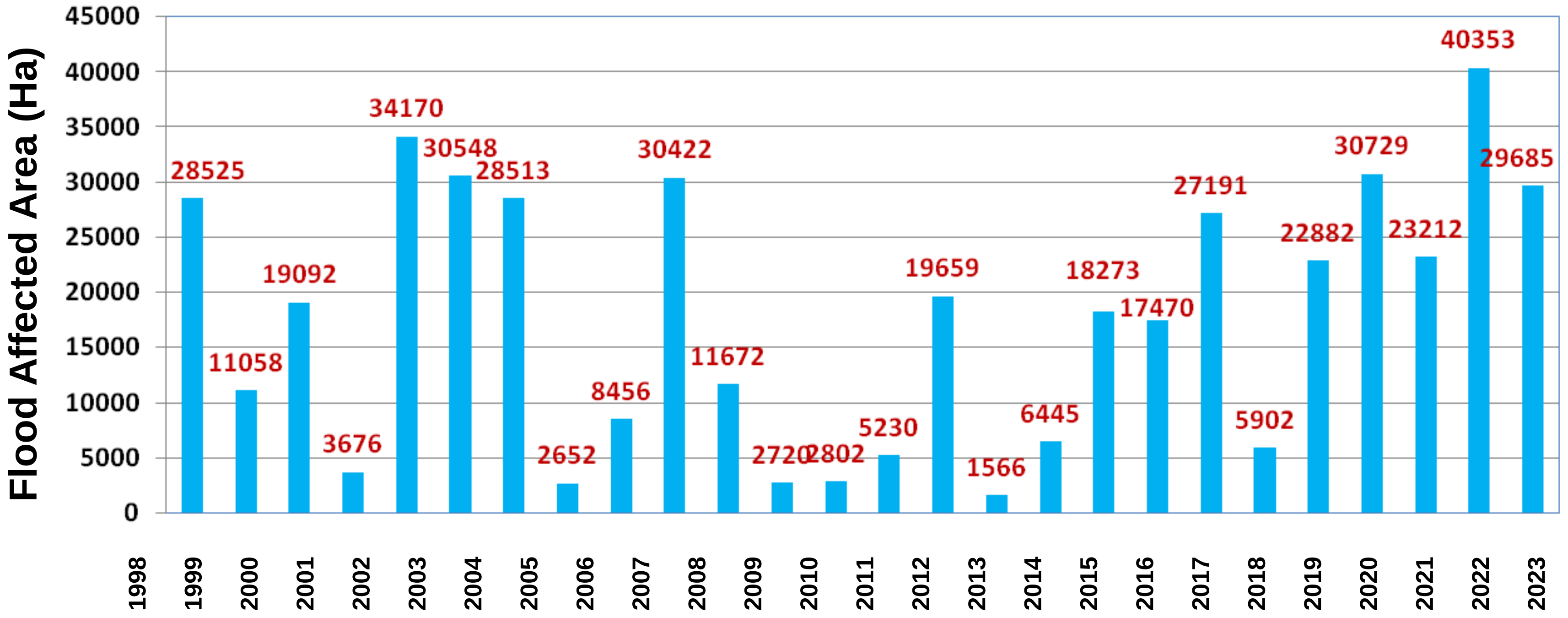
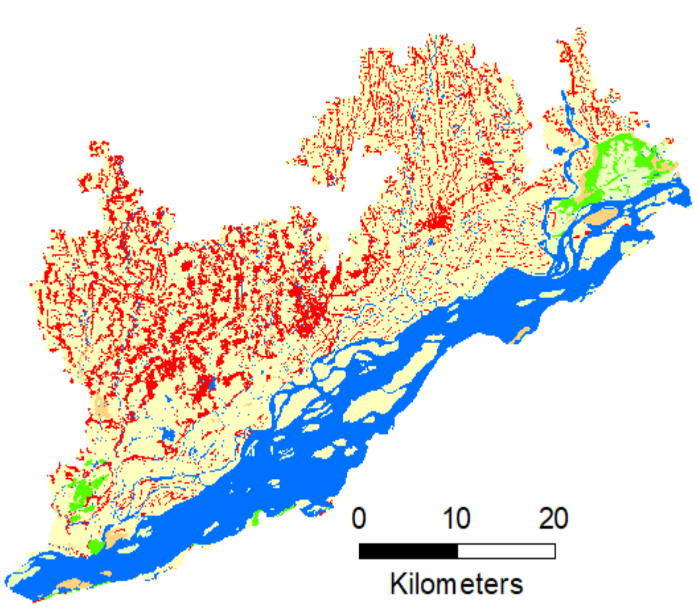
Balanagar, Hyderabad - 500 037

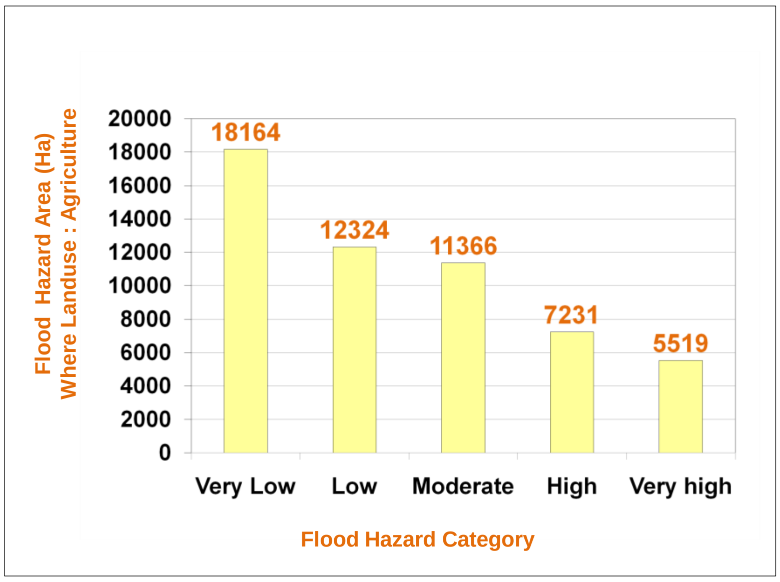
Annual Flood Affected Area in Darrang District during 1998-2023



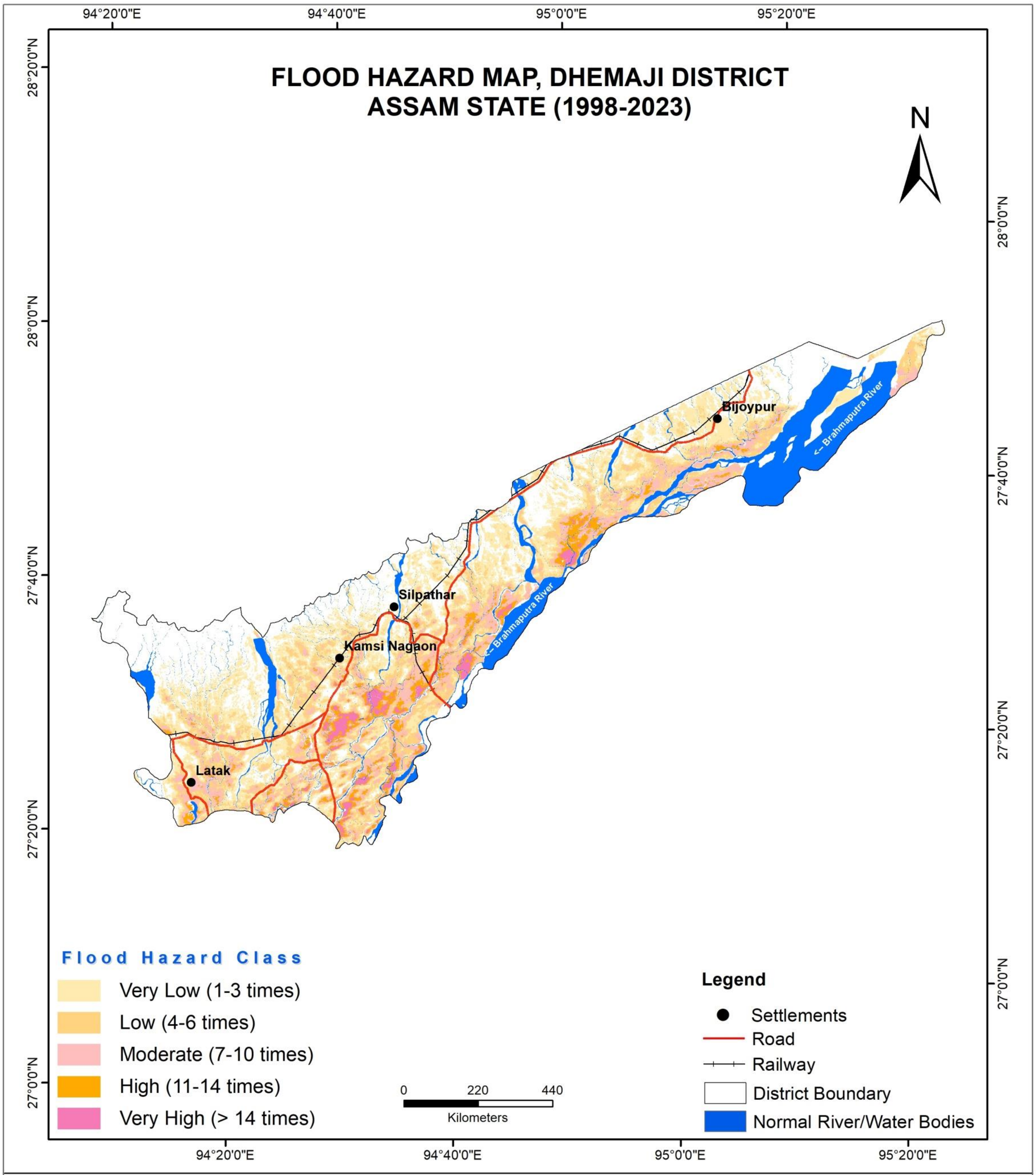
Land Use Land Cover map of Darrang District

🟥 Built-Up
▨ Agriculture
🟩 Forest
▨ Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
▨ Others

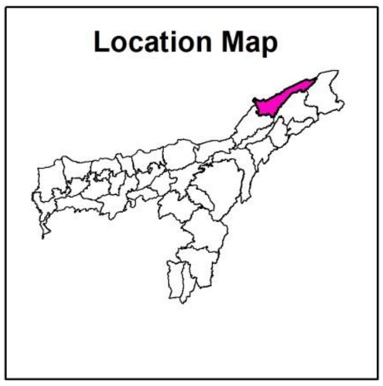




FLOOD HAZARD MAP, DHEMAJI DISTRICT ASSAM STATE (1998-2023)

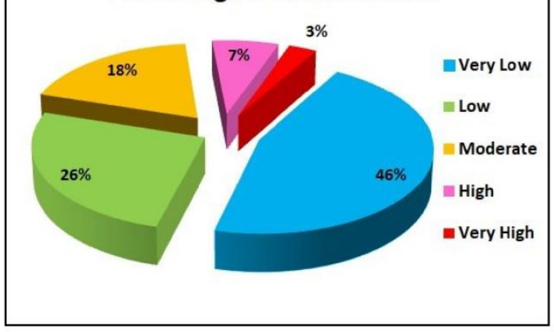

94°20'0"E
94°40'0"E
95°0'0"E
95°20'0"E
28°20'0"N
28°0'0"N
27°40'0"N
27°20'0"N
27°0'0"N
N
Bijoypur
Silpathar
Kamsi Nagaon
Latak
<-- Brahmaputra River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0 220 440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	65246
2	Low	36918
3	Moderate	26664
4	High	9824
5	Very High	4164

Percentage of Area Affected



Prepared by
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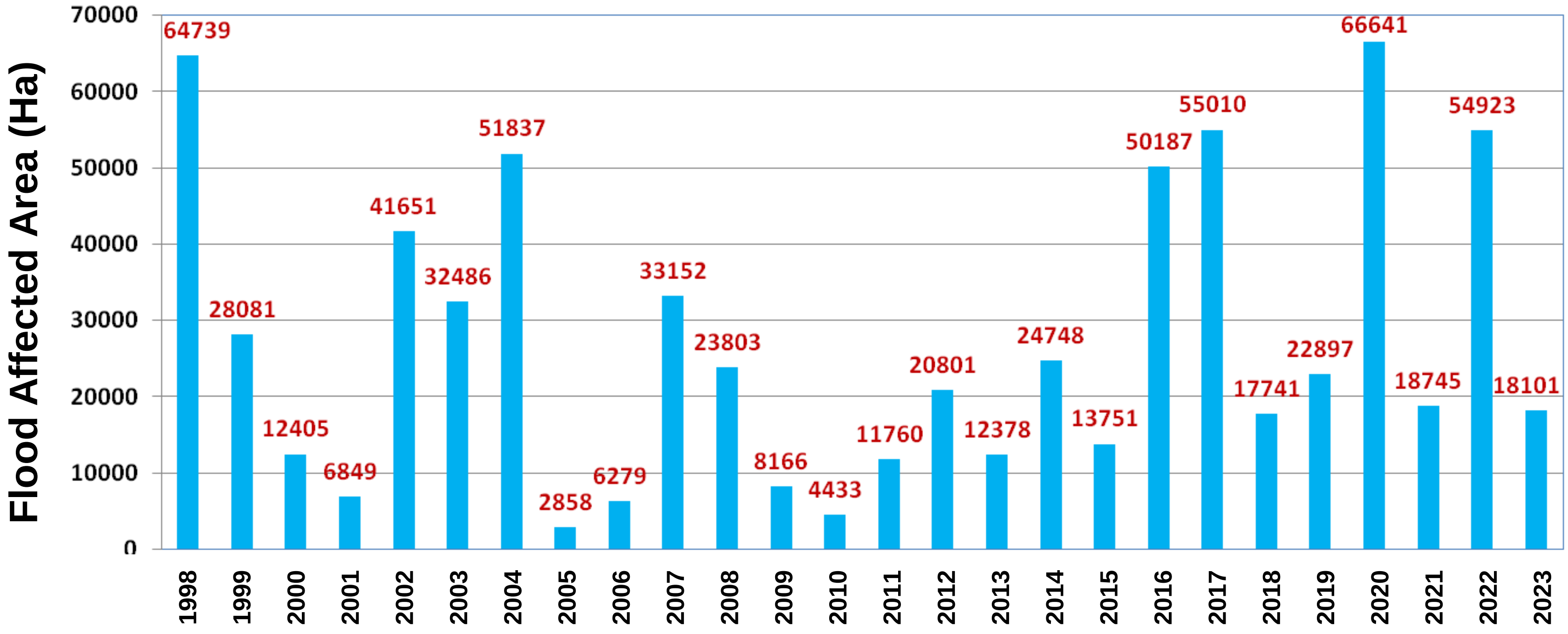
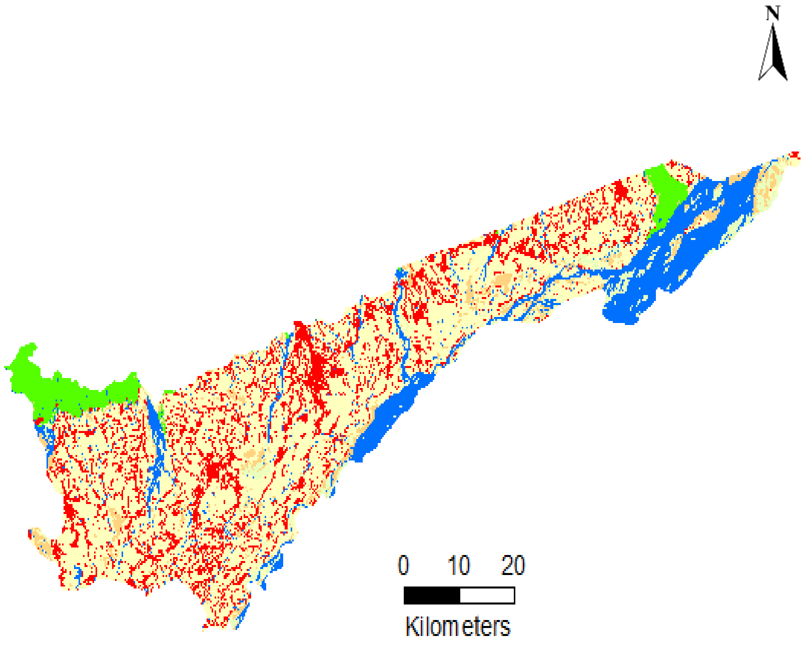
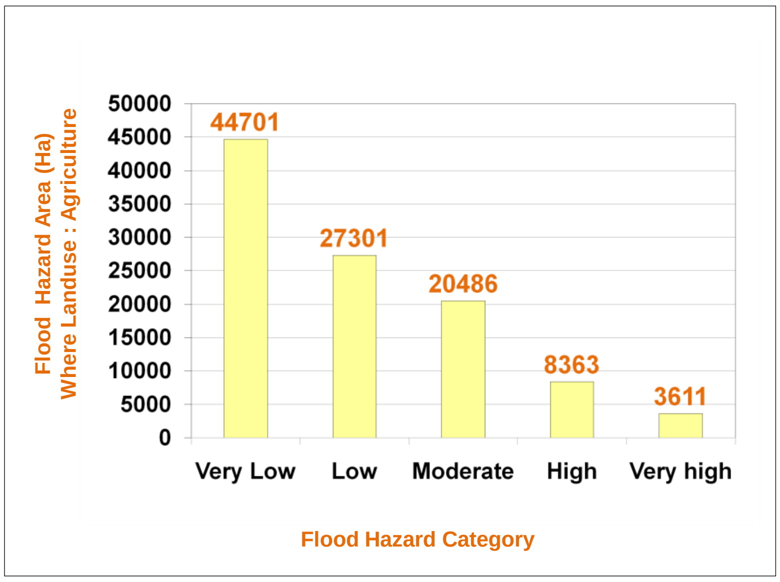
Annual Flood Affected Area in Dhemaji District during 1998-2023



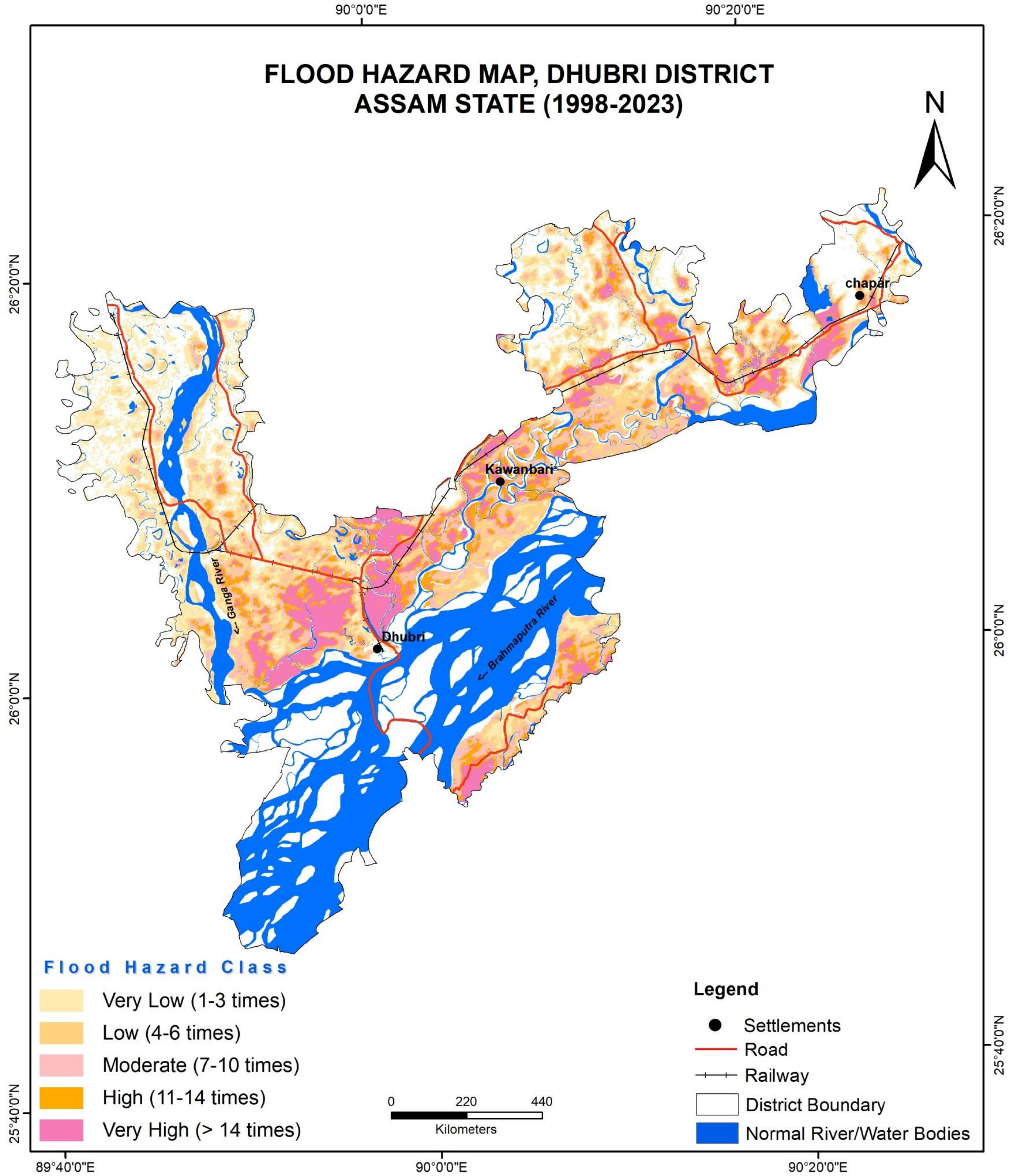
Land Use Land Cover map of Dhemaji District

🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others





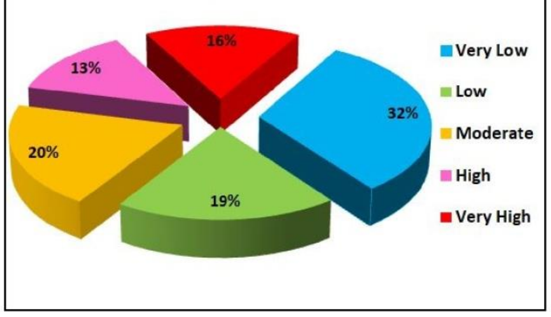
FLOOD HAZARD MAP, DHUBRI DISTRICT
ASSAM STATE (1998-2023)


90°0'0"E
90°20'0"E
26°20'0"N
26°0'0"N
25°40'0"N
89°40'0"E
N
chapar
Kawanbari
Dhubri
<-- Ganga River
<-- Brahmaputra River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	25646
2	Low	15521
3	Moderate	16137
4	High	10817
5	Very High	13137

Percentage of Area Affected



Prepared by
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Indian Space Research Organisation (ISRO)
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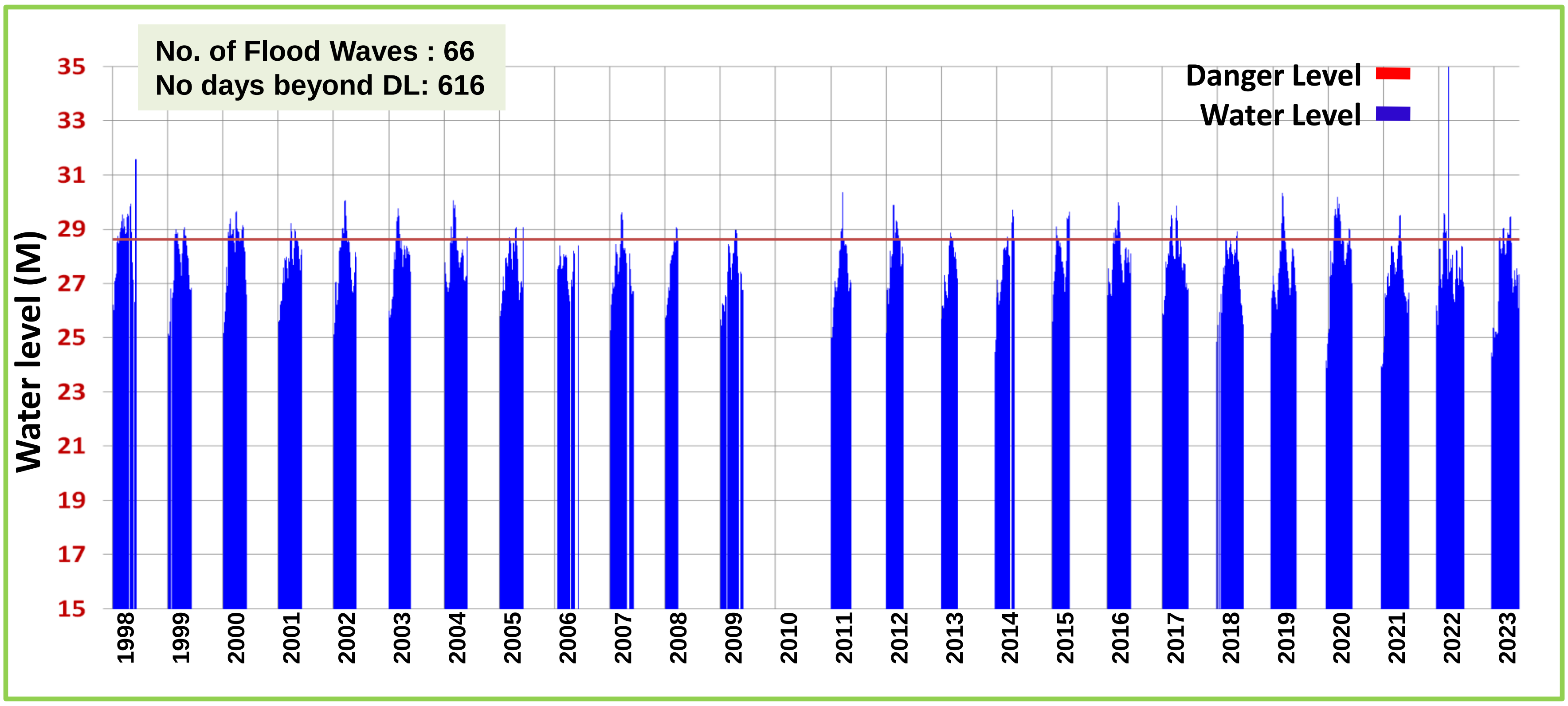
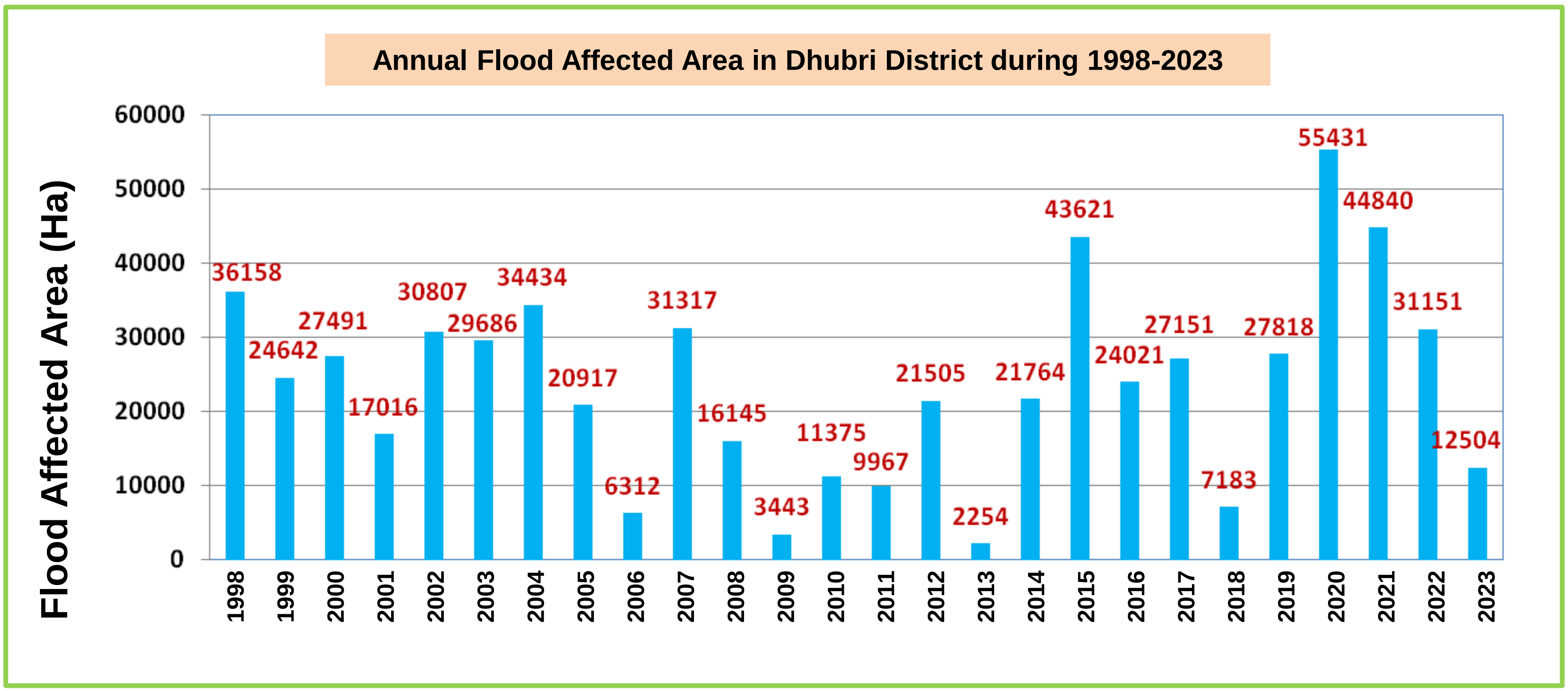
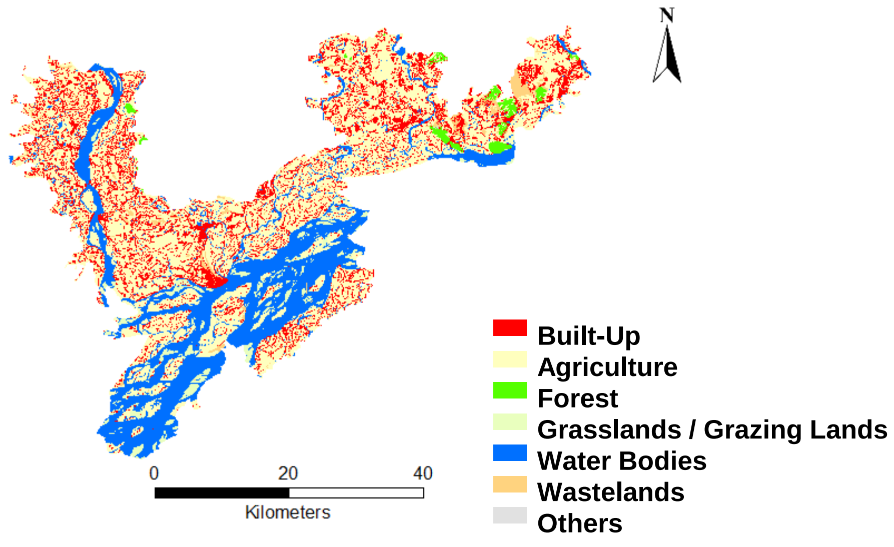
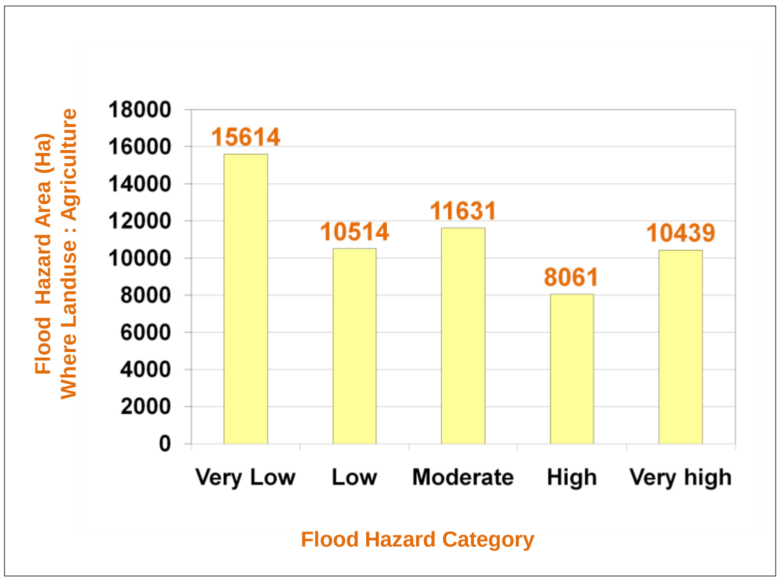


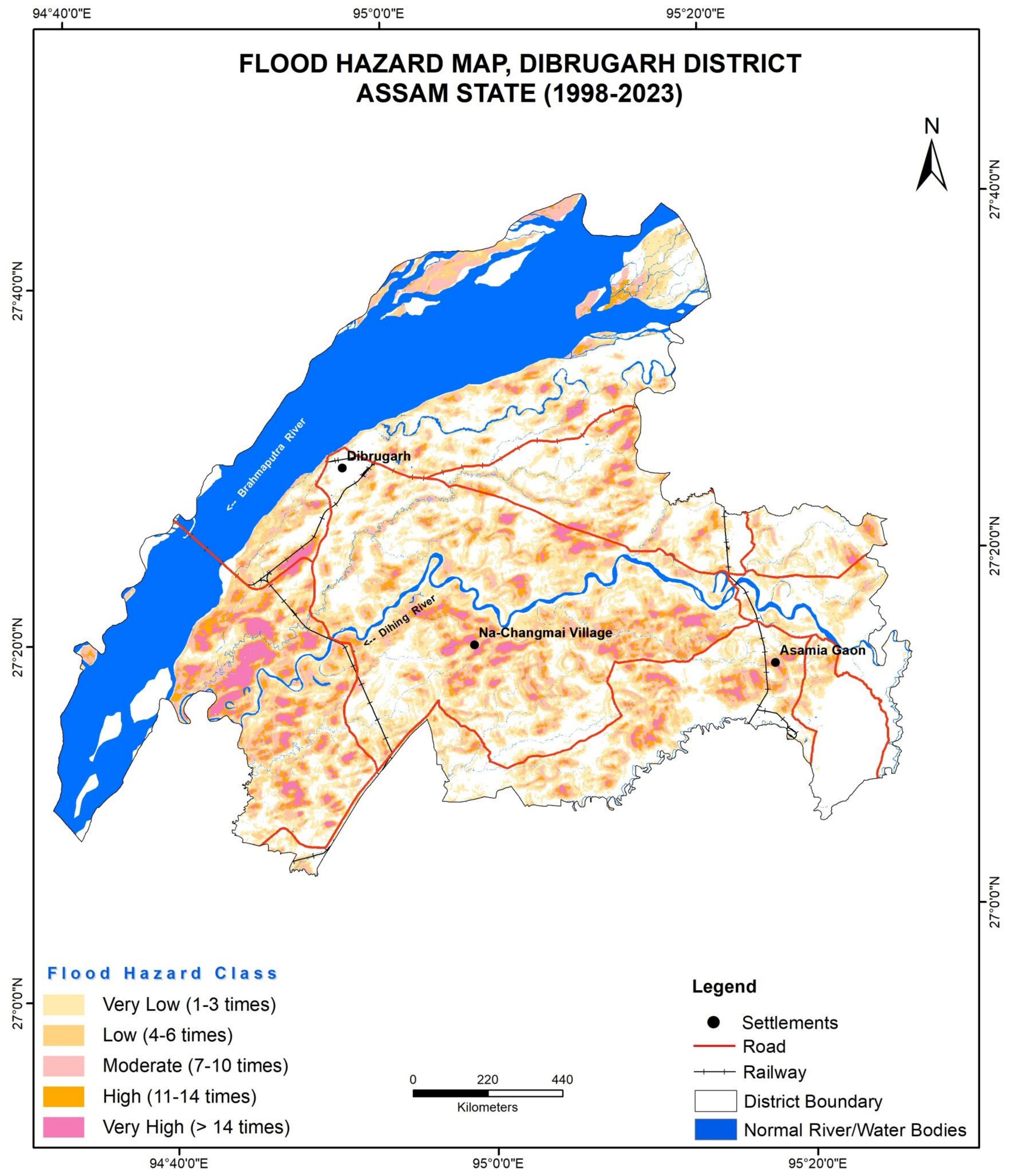
Water Levels at Dhubri Gauge Station during 1998-2023 (May-Oct)



Land Use Land Cover map of Dhubri District

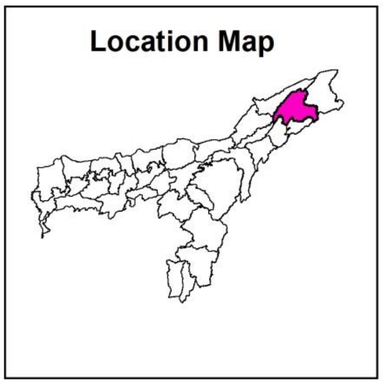

N
0
20
40
Kilometers
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others





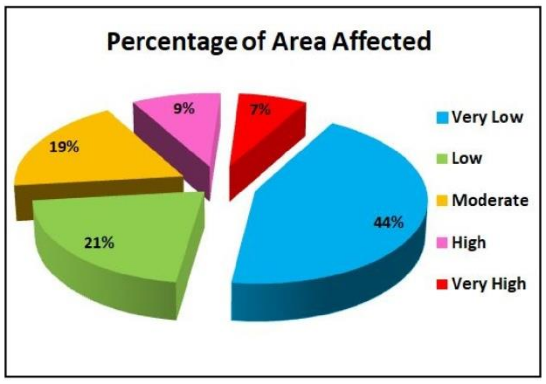
FLOOD HAZARD MAP, DIBRUGARH DISTRICT
ASSAM STATE (1998-2023)

94°40'0"E
95°0'0"E
95°20'0"E
27°40'0"N
27°20'0"N
27°0'0"N
N
<-- Brahmaputra River
Dibrugarh
<-- Dihing River
Na-Changmai Village
Asamia Gaon
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies



Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	65880
2	Low	31334
3	Moderate	27626
4	High	14074
5	Very High	10821



Percentage of Area Affected

Prepared by
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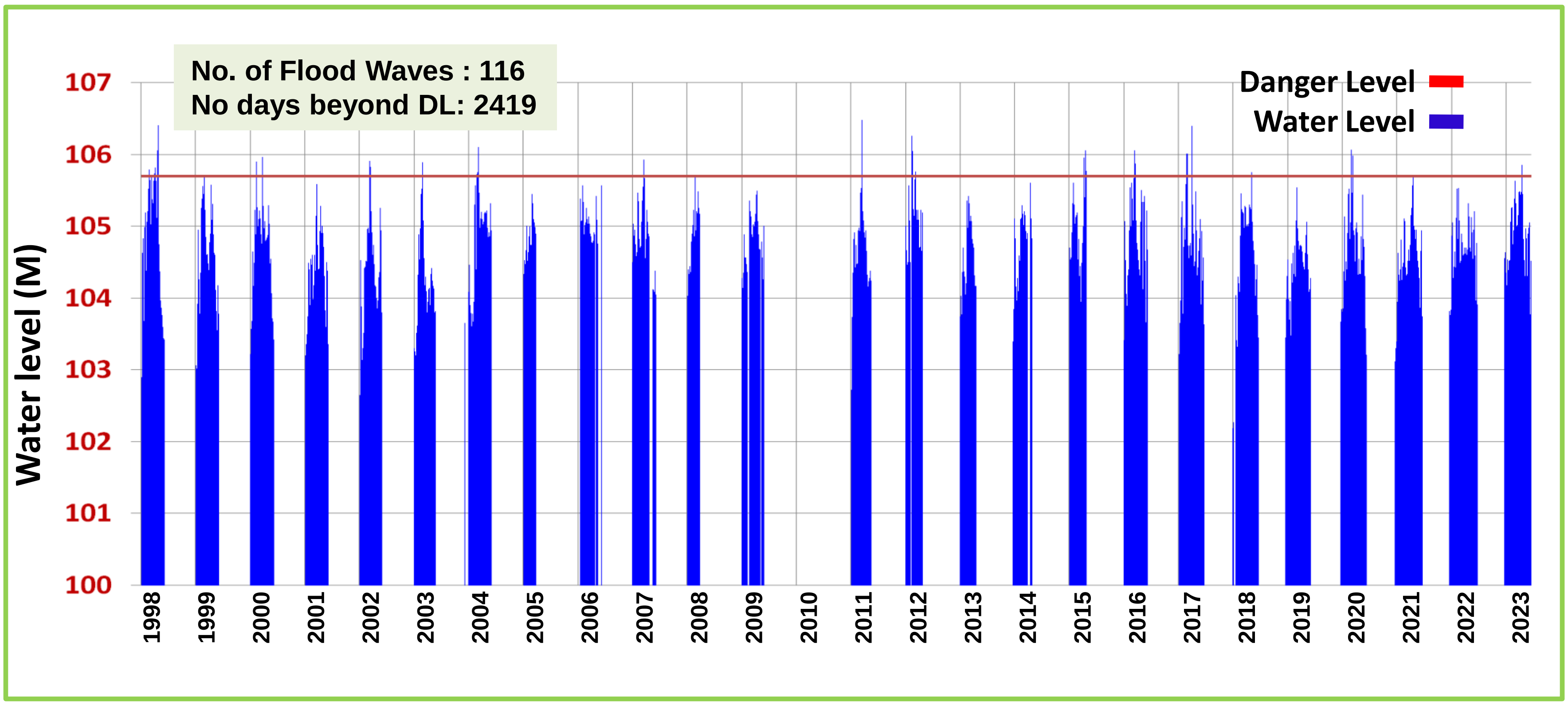
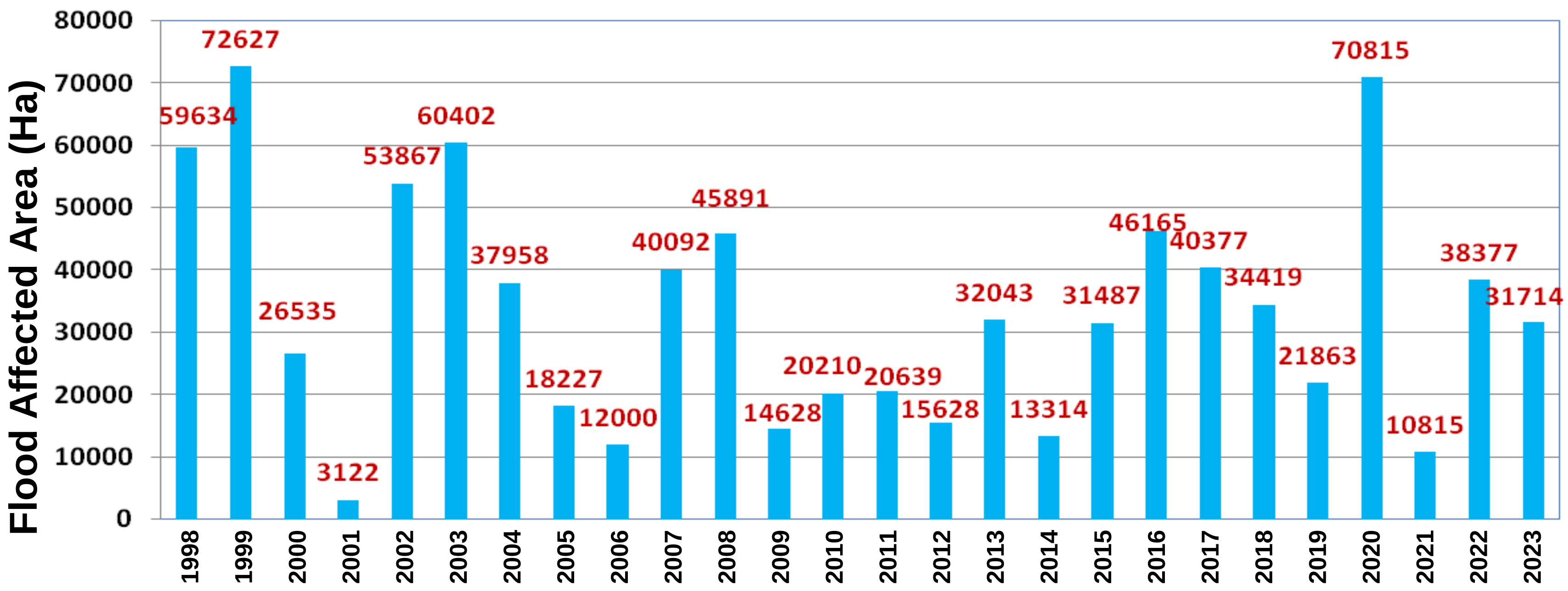
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

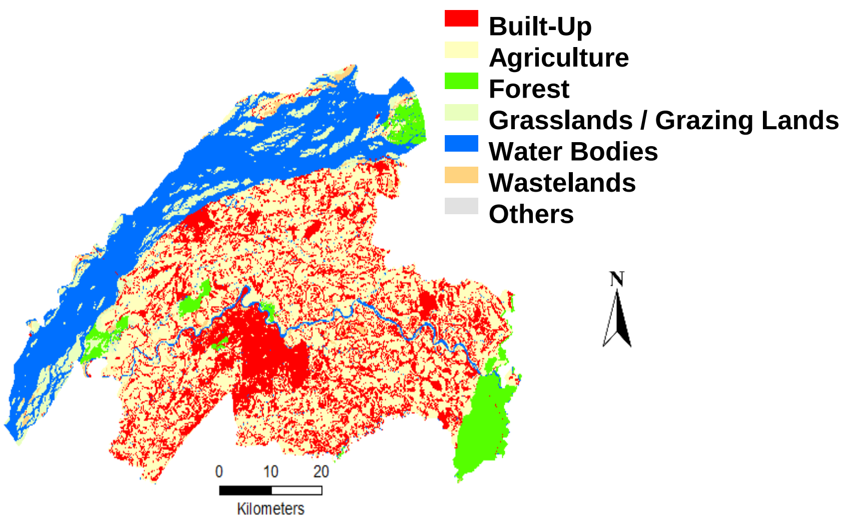


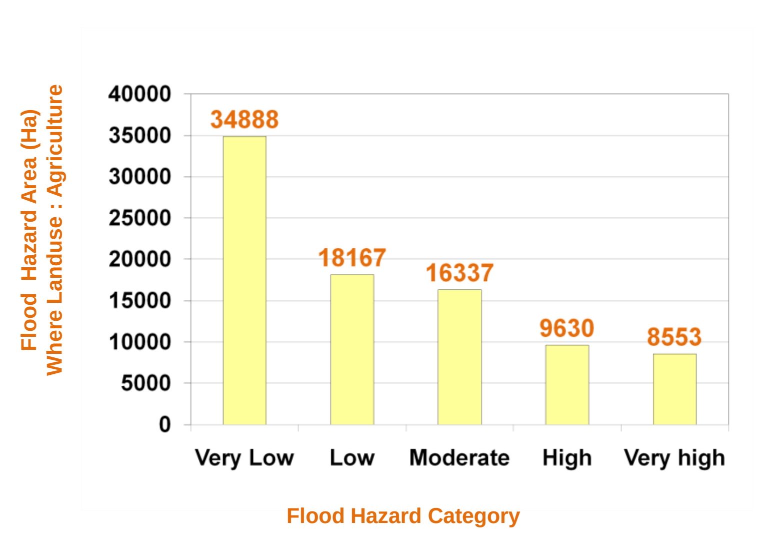
Water Levels at Dibrugarh Gauge Station during 1998-2023 (May-Oct)

Annual Flood Affected Area in Dibrugarh District during 1998-2023

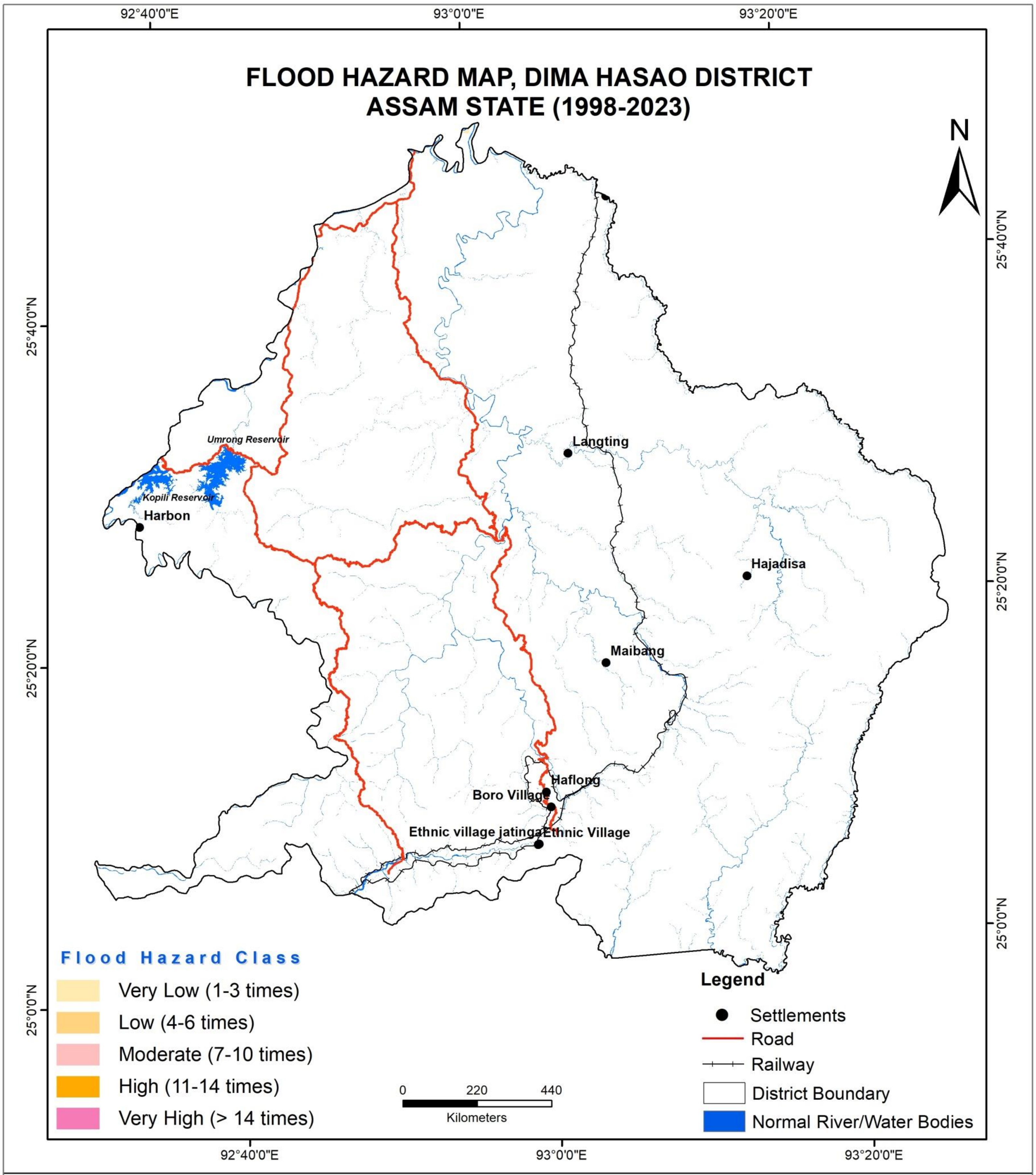


Land Use Land Cover map of Dibrugarh District


Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others
N
0
10
20
Kilometers

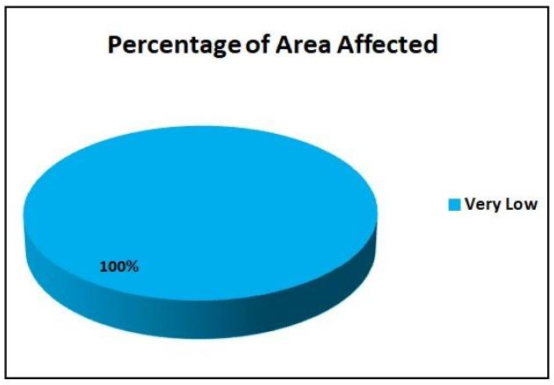


FLOOD HAZARD MAP, DIMA HASAO DISTRICT
ASSAM STATE (1998-2023)


92°40'0"E
93°0'0"E
93°20'0"E
25°40'0"N
25°20'0"N
25°0'0"N
N
Umrong Reservoir
Kopili Reservoir
Harbon
Langting
Hajadisa
Maibang
Haflong
Boro Village
Ethnic village jatinga
Ethnic Village
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0 220 440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	28
2	Low	0
3	Moderate	0
4	High	0
5	Very High	0



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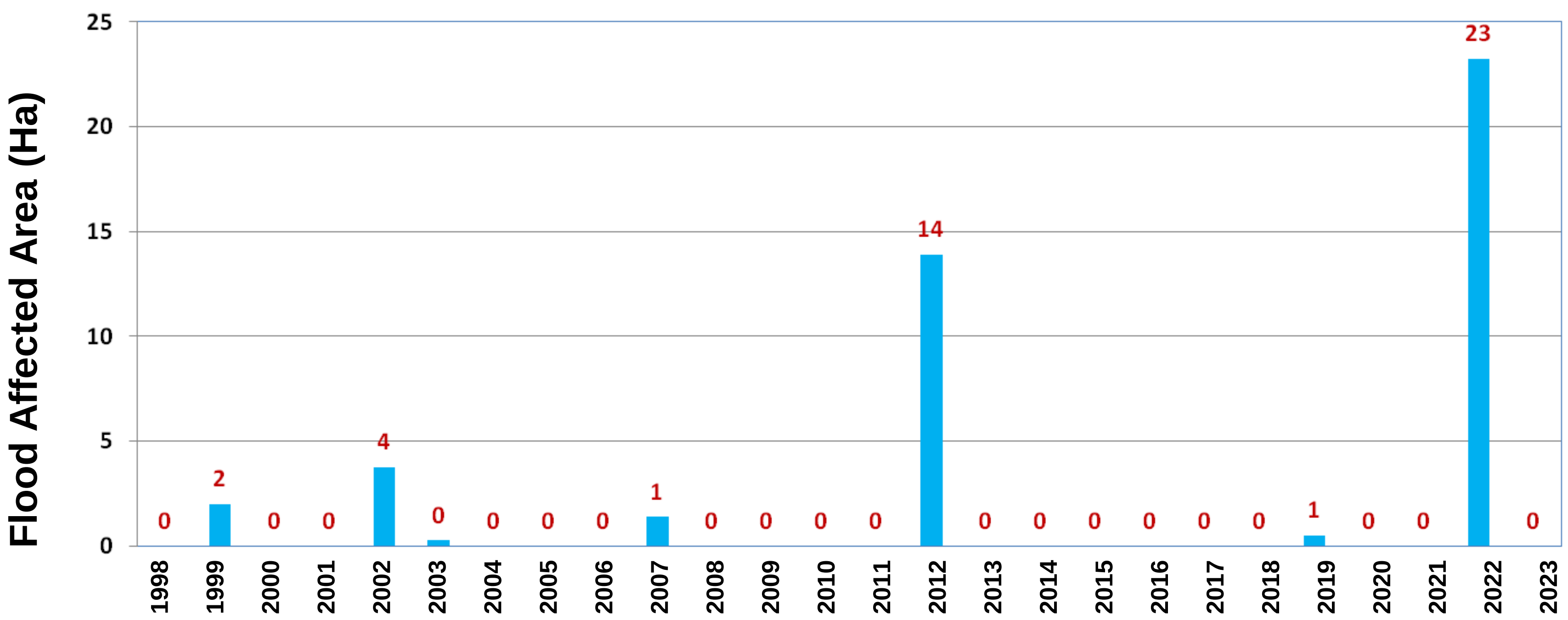
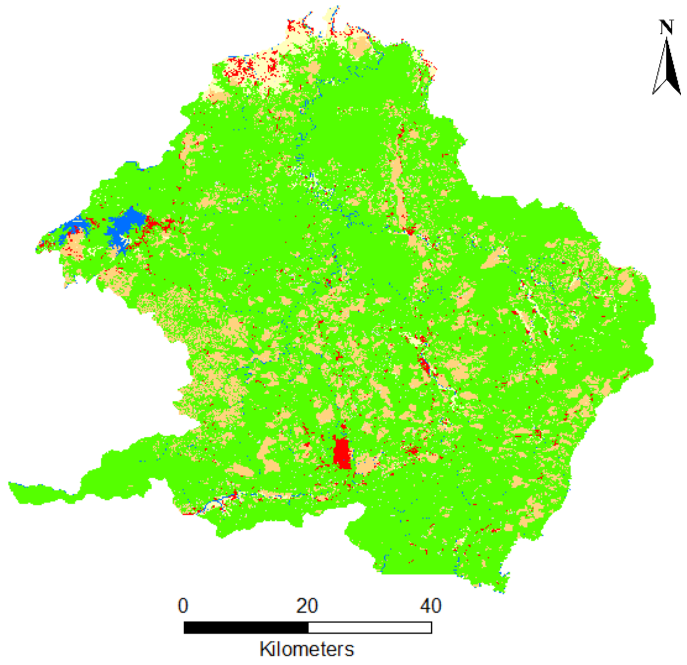
National Remote Sensing Centre (NRSC)
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

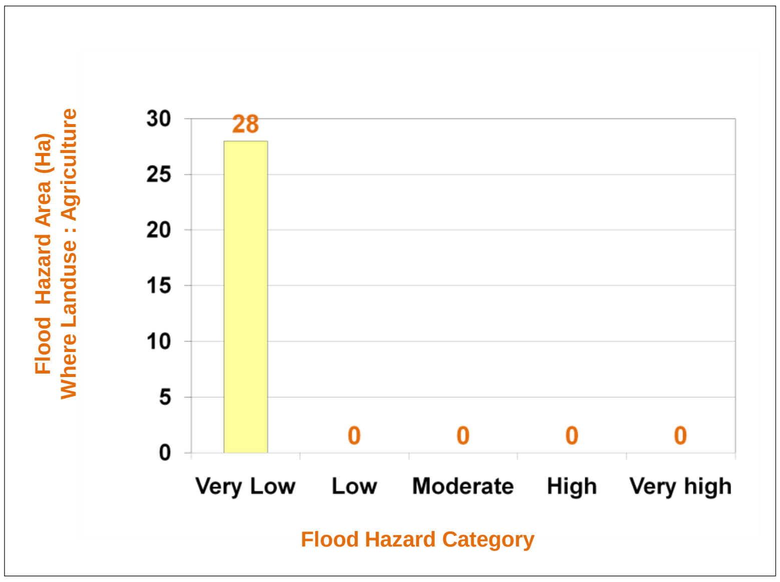
Annual Flood Affected Area in Dima Hasao District during 1998-2023

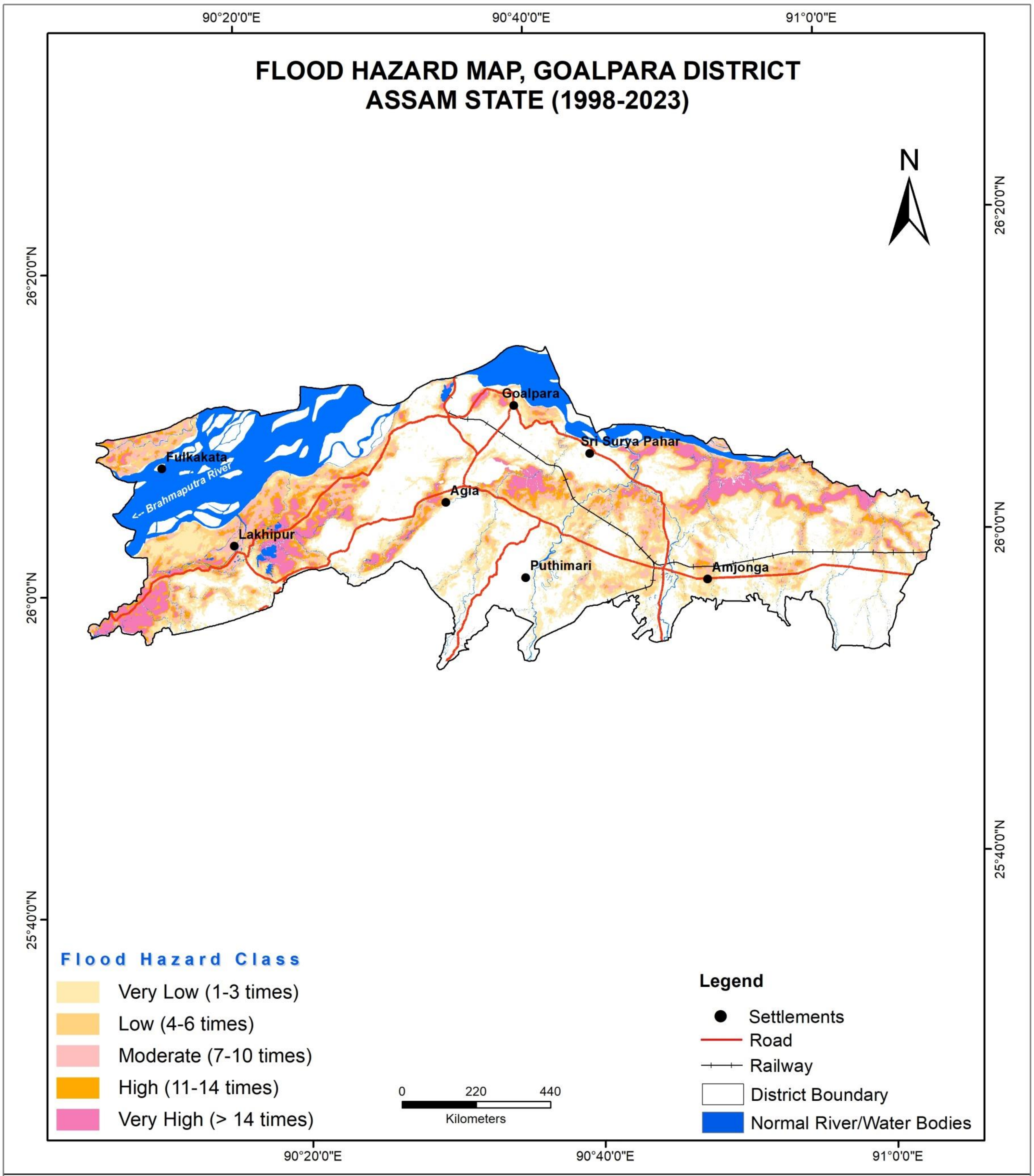


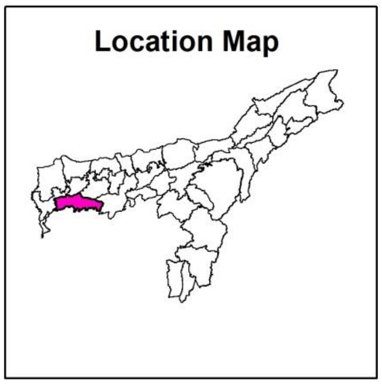
Land Use Land Cover map of Dima Hasao District

🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others

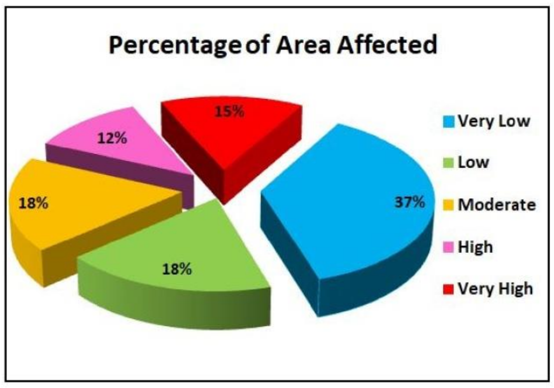





FLOOD HAZARD MAP, GOALPARA DISTRICT
ASSAM STATE (1998-2023)
90°20'0"E
90°40'0"E
91°0'0"E
26°20'0"N
26°0'0"N
25°40'0"N
N
Fulkakata
<-- Brahmaputra River
Goalpara
Sri Surya Pahar
Agia
Lakhipur
Puthimari
Amjonga
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies


Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	31689
2	Low	15682
3	Moderate	15545
4	High	10018
5	Very High	12779



Prepared by
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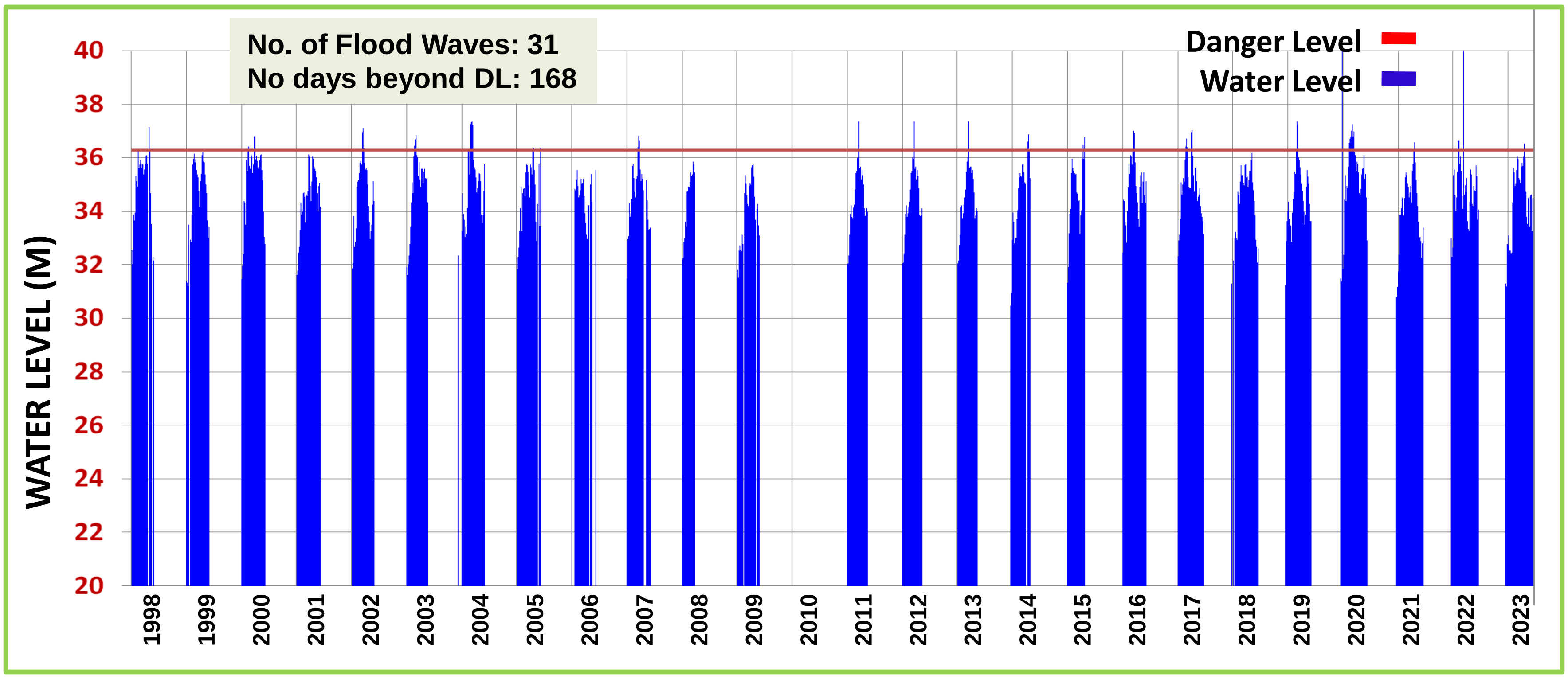
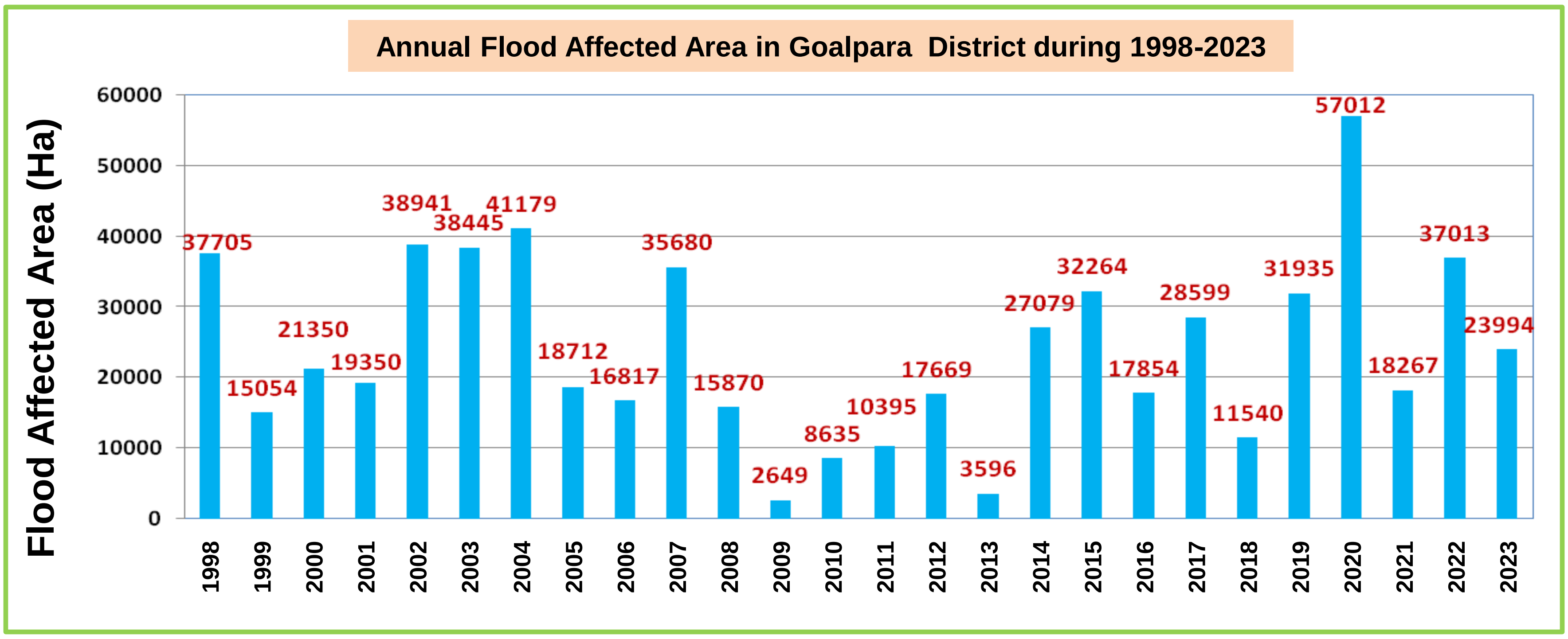
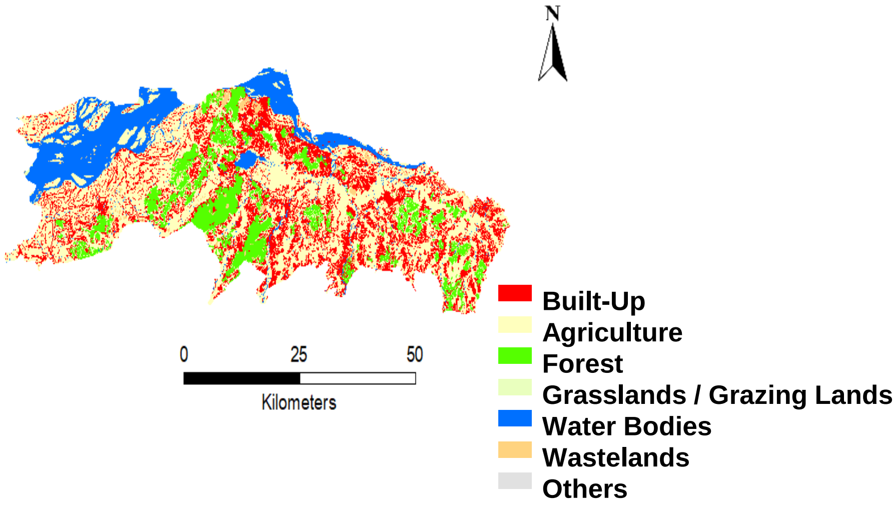
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

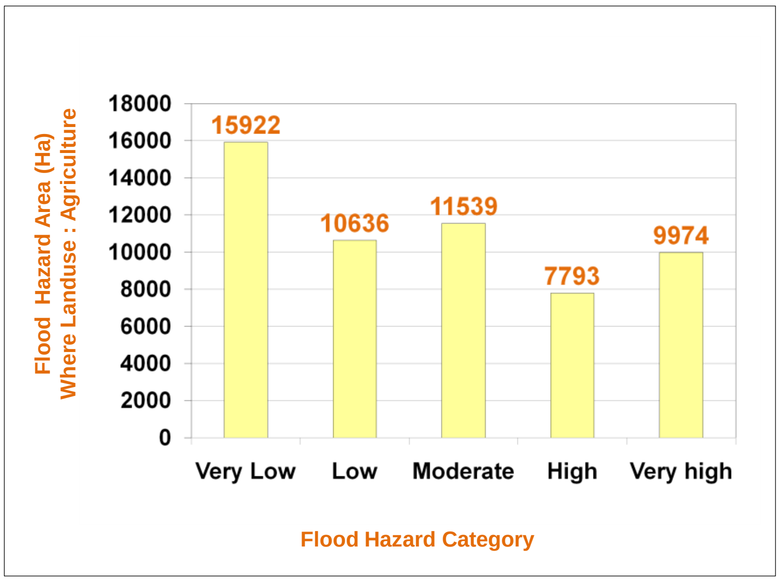


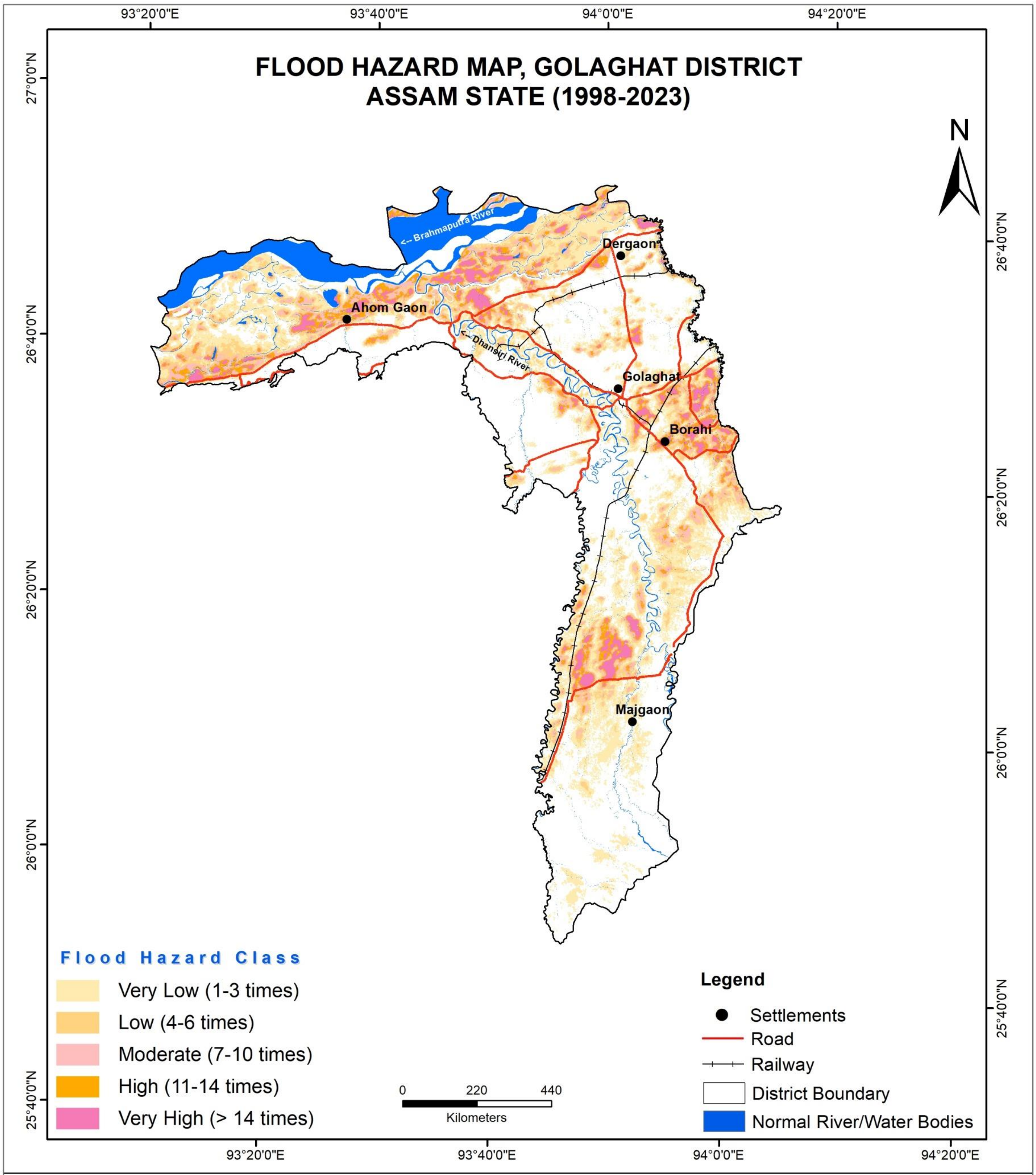
Water Levels at Goalpara Gauge Station during 1998-2023 (May-Oct)



Land Use Land Cover map of Goalpara District

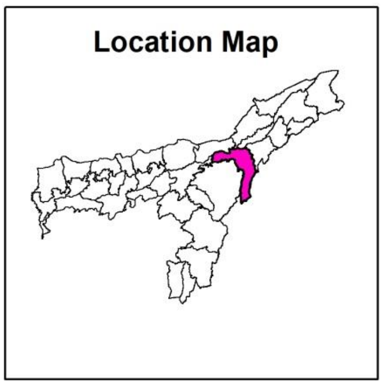

N
0
25
50
Kilometers
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others





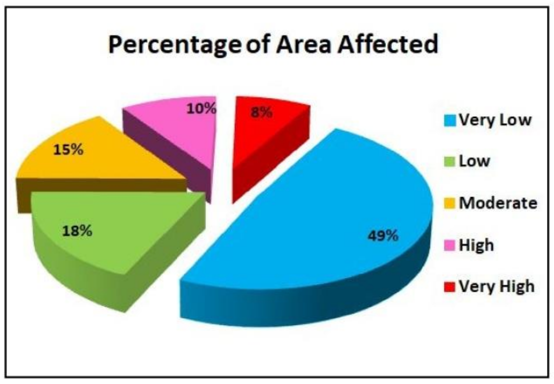
FLOOD HAZARD MAP, GOLAGHAT DISTRICT ASSAM STATE (1998-2023)

93°20'0"E
93°40'0"E
94°0'0"E
94°20'0"E
27°0'0"N
26°40'0"N
26°20'0"N
26°0'0"N
25°40'0"N
N
<-- Brahmaputra River
<-- Dhansiri River
Dergaon
Ahom Gaon
Golaghat
Borahi
Majgaon
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0 220 440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies



Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	68035
2	Low	25431
3	Moderate	21518
4	High	13927
5	Very High	11005



Percentage of Area Affected

Prepared by
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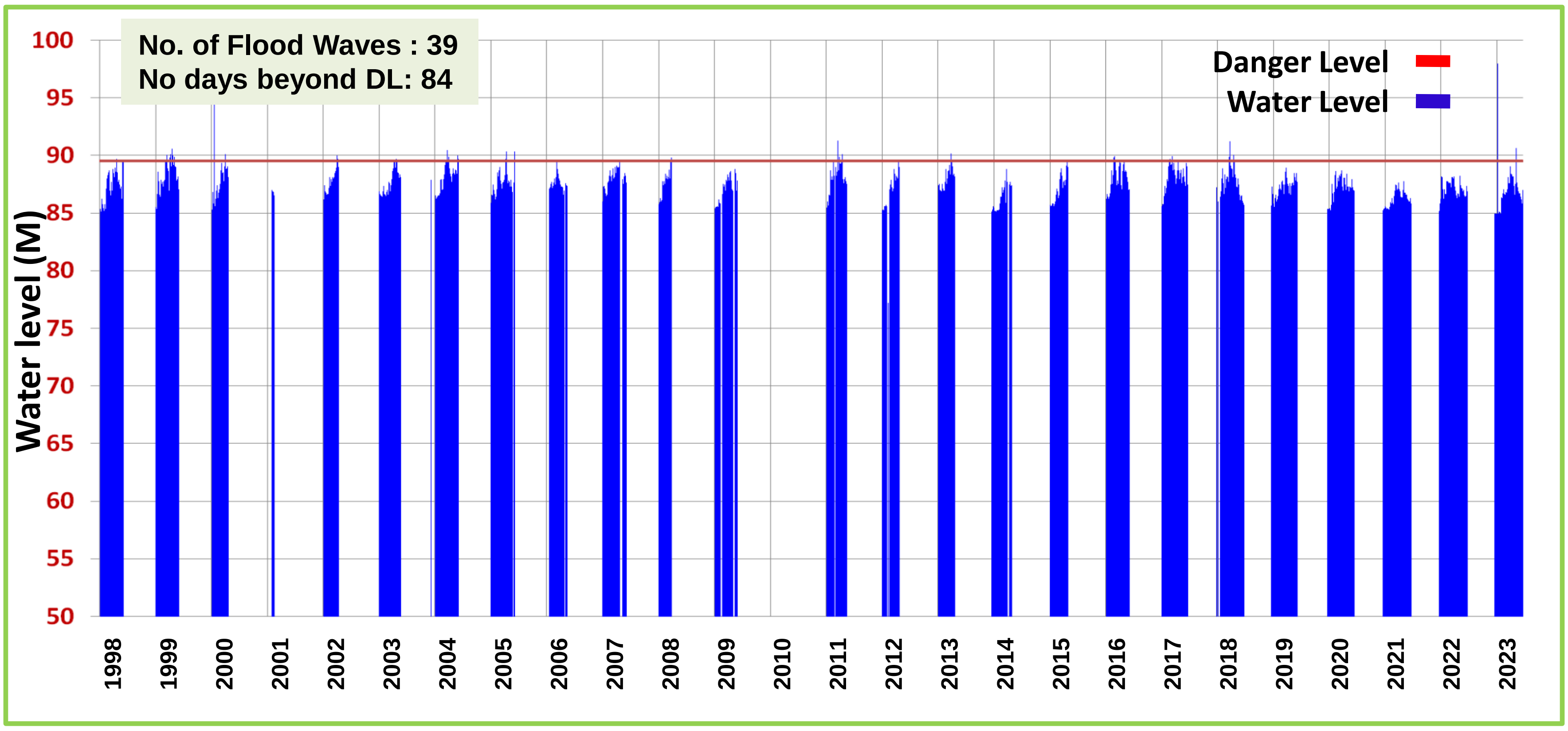
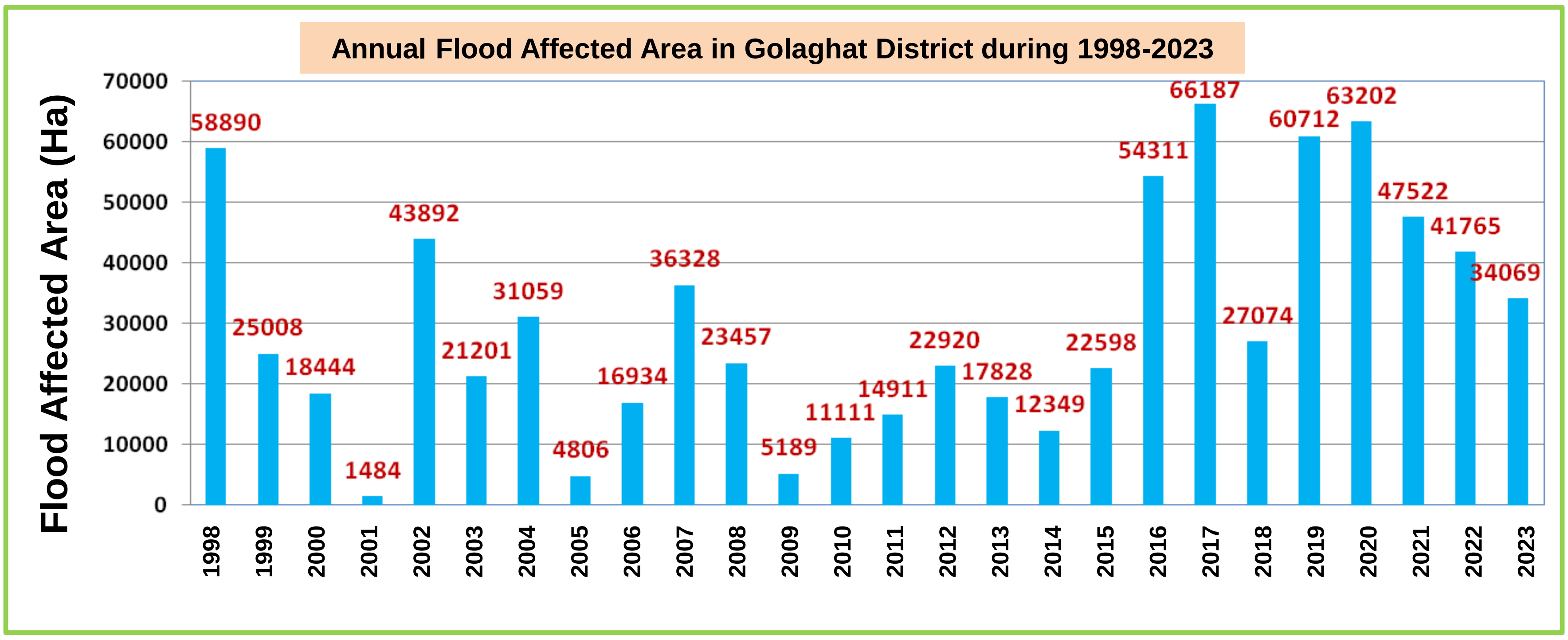
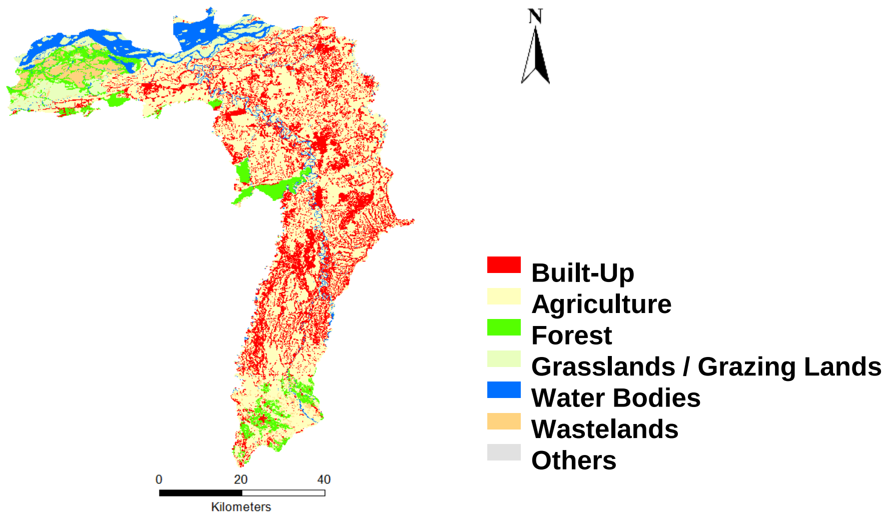
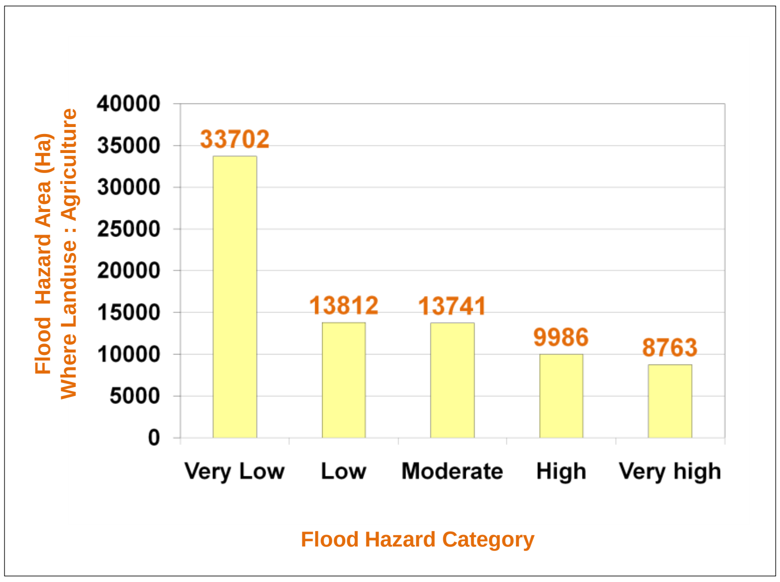


Water Levels at Golaghat Gauge Station during 1998-2023 (May-Oct)

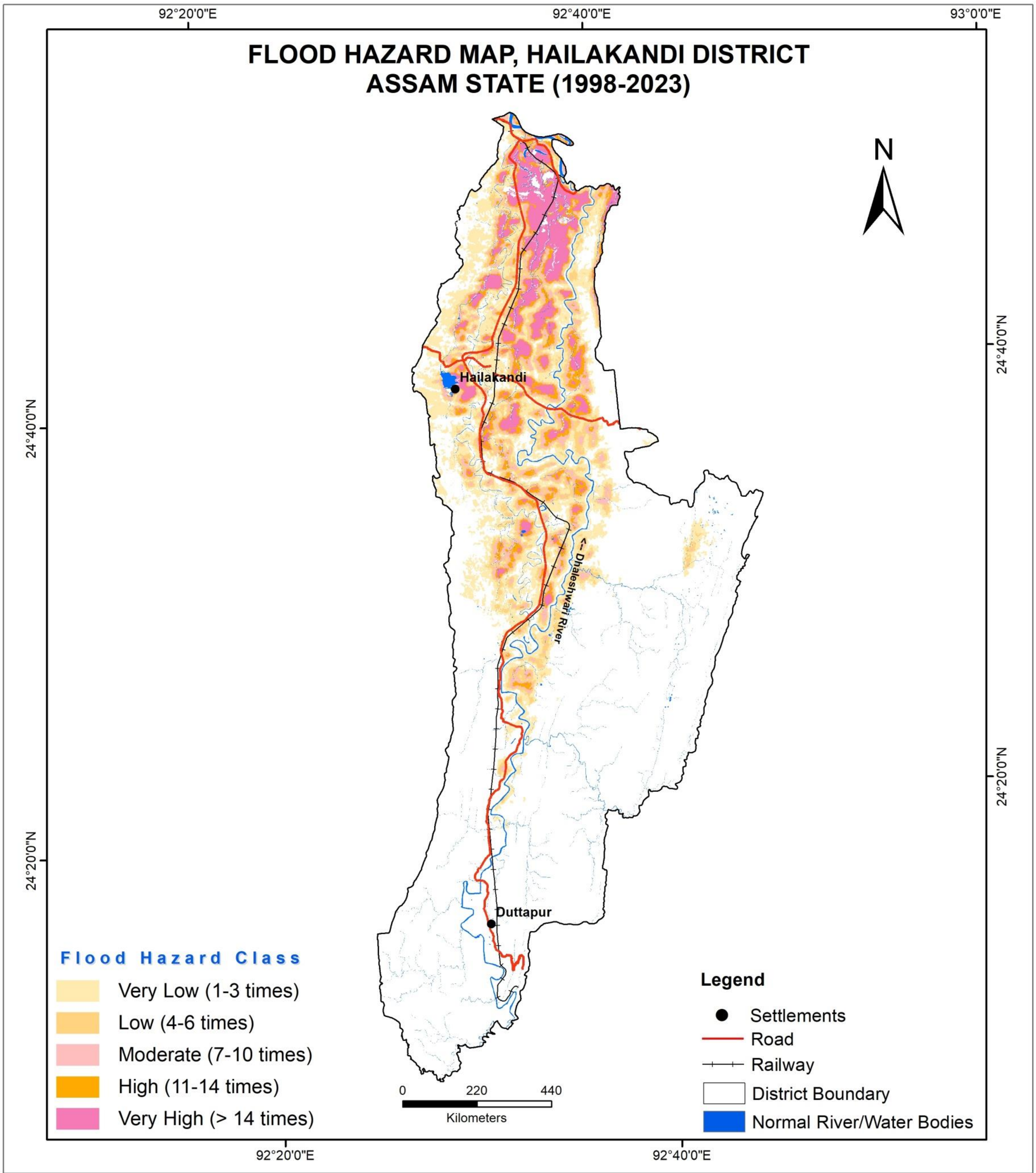

Annual Flood Affected Area in Golaghat District during 1998-2023

Land Use Land Cover map of Golaghat District

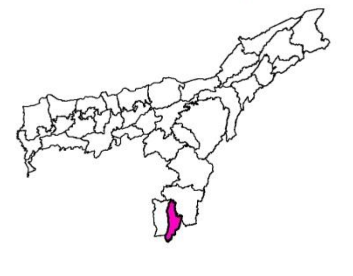

N
0
20
40
Kilometers
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others



FLOOD HAZARD MAP, HAILAKANDI DISTRICT
ASSAM STATE (1998-2023)

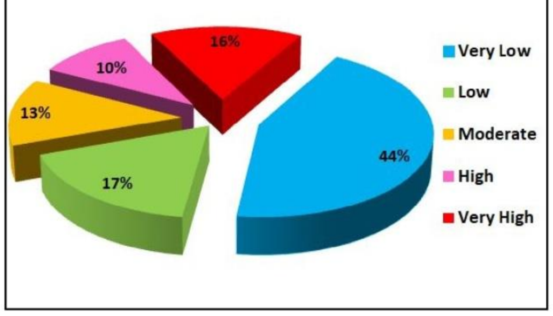

92°20'0"E
92°40'0"E
93°0'0"E
24°40'0"N
24°20'0"N
N
Hailakandi
Duttapur
<-- Dhaleshwari River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	18657
2	Low	7419
3	Moderate	5548
4	High	4240
5	Very High	6709

Percentage of Area Affected



Prepared by

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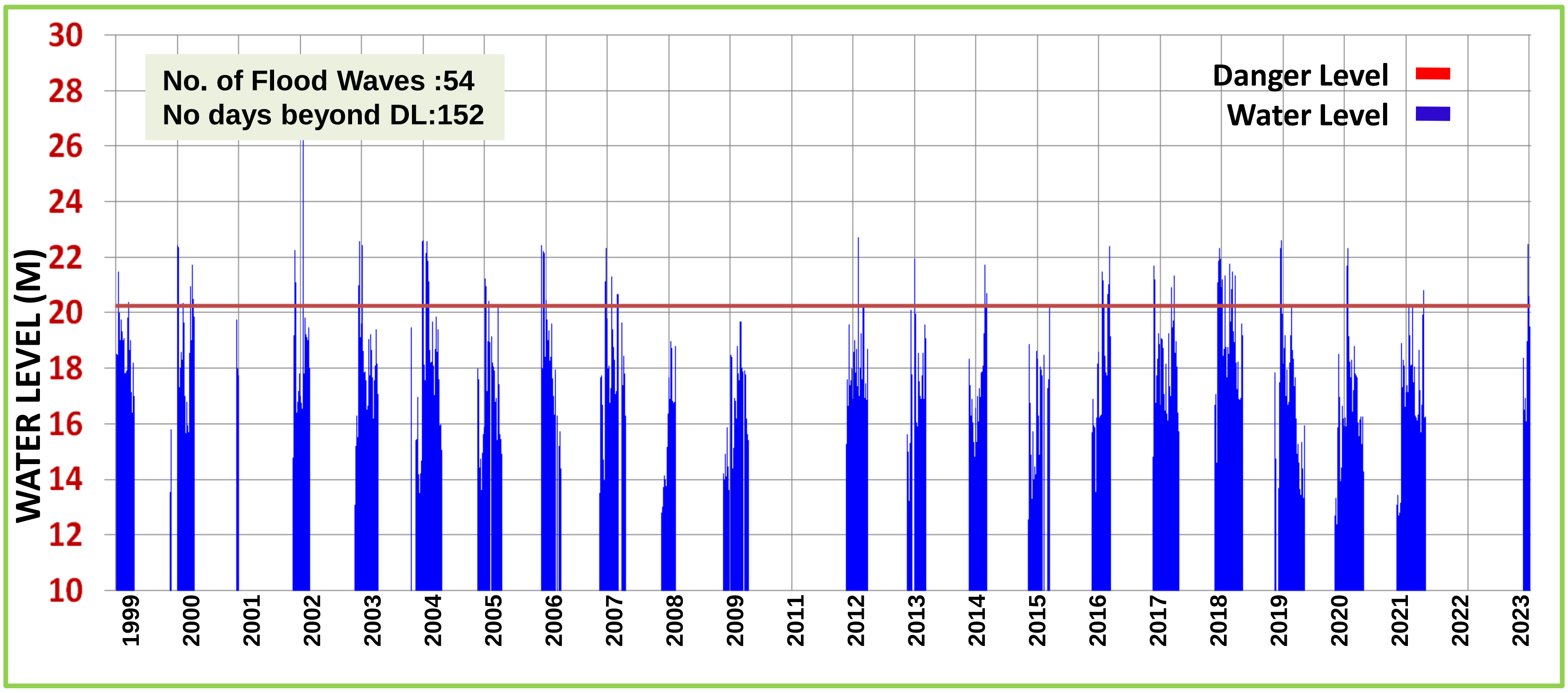
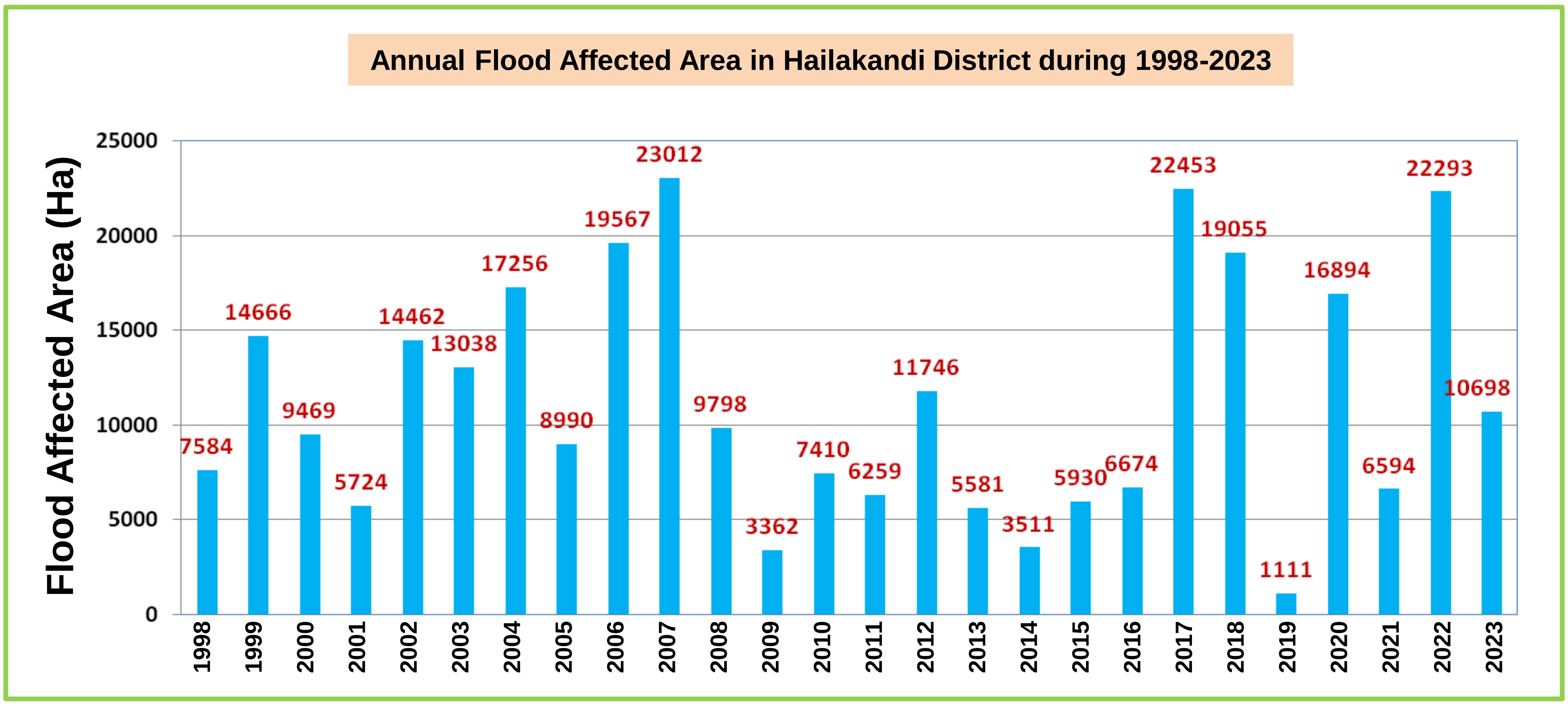
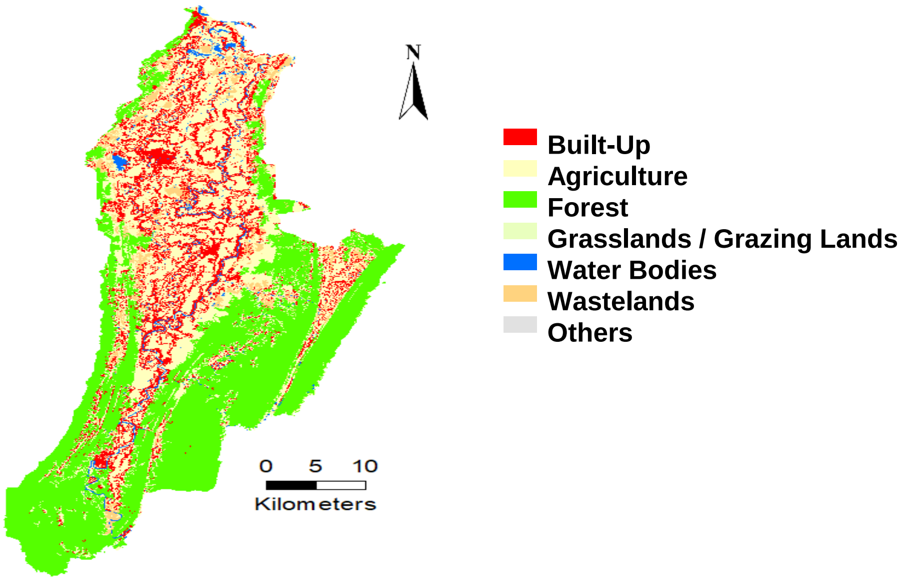
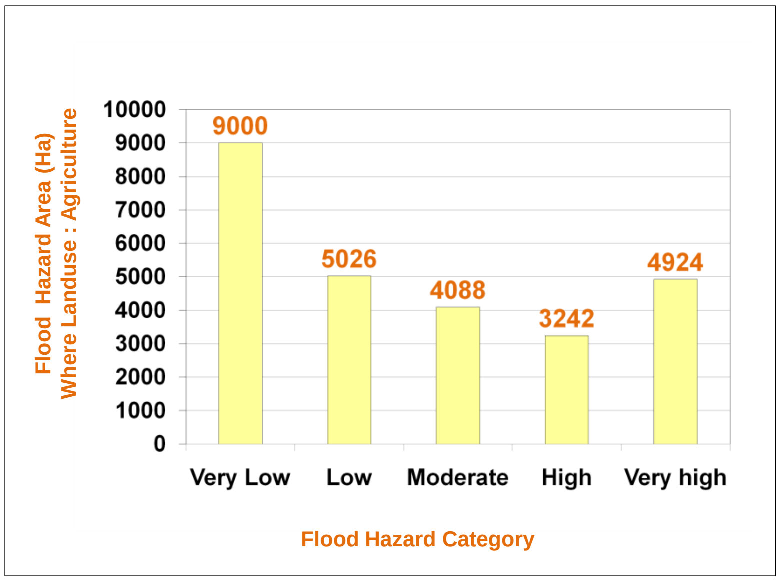


Water Levels at Matizuri Gauge Station during 1998-2023 (May-Oct)

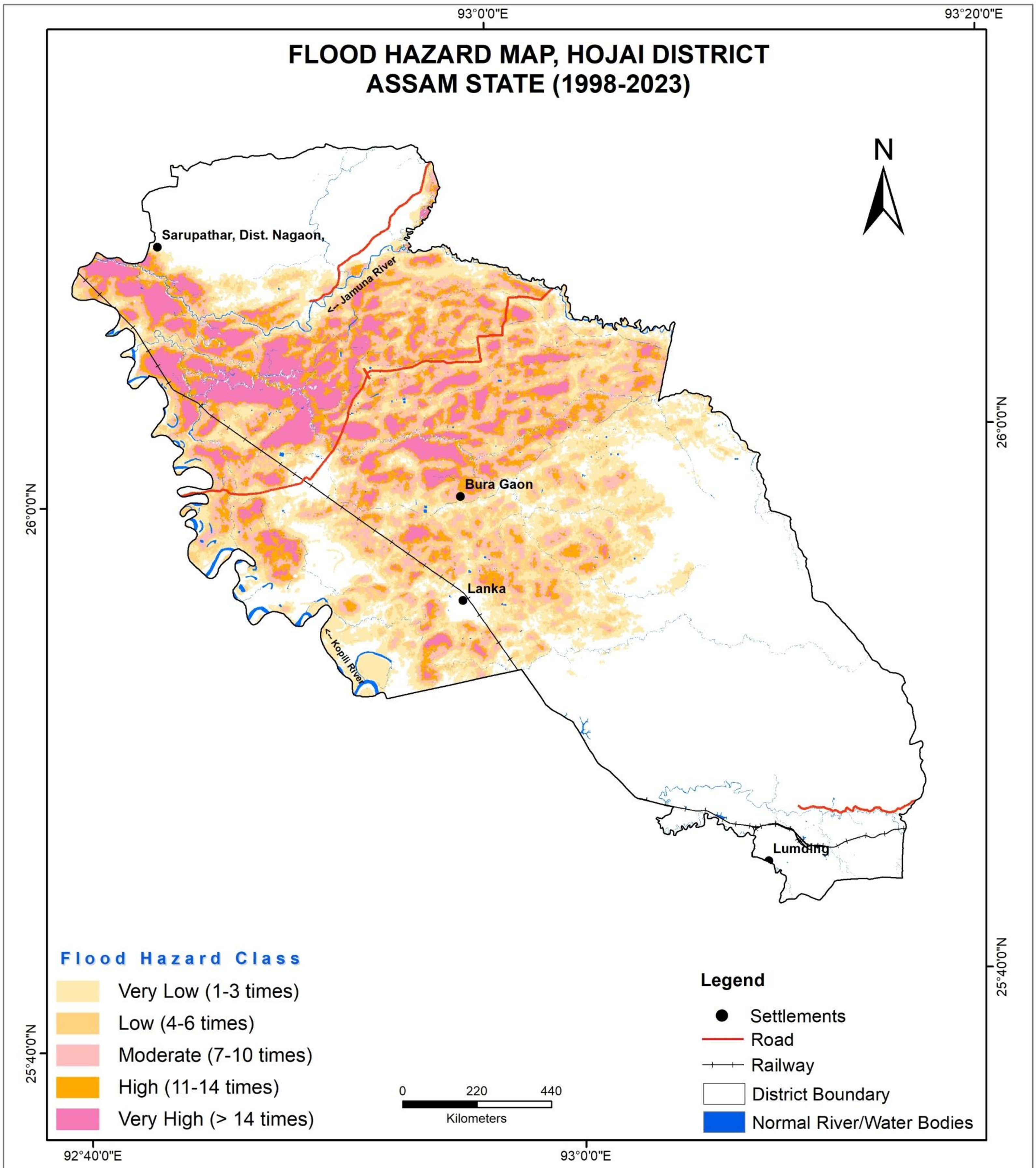

Annual Flood Affected Area in Hailakandi District during 1998-2023

Land Use Land Cover map of Hailakandi District


N
🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
Wastelands
Others
0 5 10
Kilometers

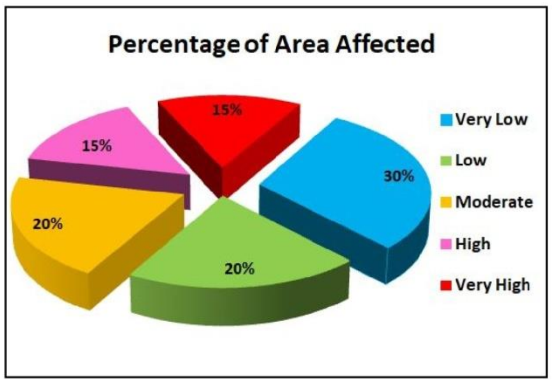


FLOOD HAZARD MAP, HOJAI DISTRICT ASSAM STATE (1998-2023)


93°0'0"E
93°20'0"E
26°0'0"N
25°40'0"N
92°40'0"E
N
Sarupathar, Dist. Nagaon,
<-- Jamuna River
Bura Gaon
Lanka
<-- Kopili River
Lumding
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	22169
2	Low	15329
3	Moderate	15054
4	High	11160
5	Very High	11345



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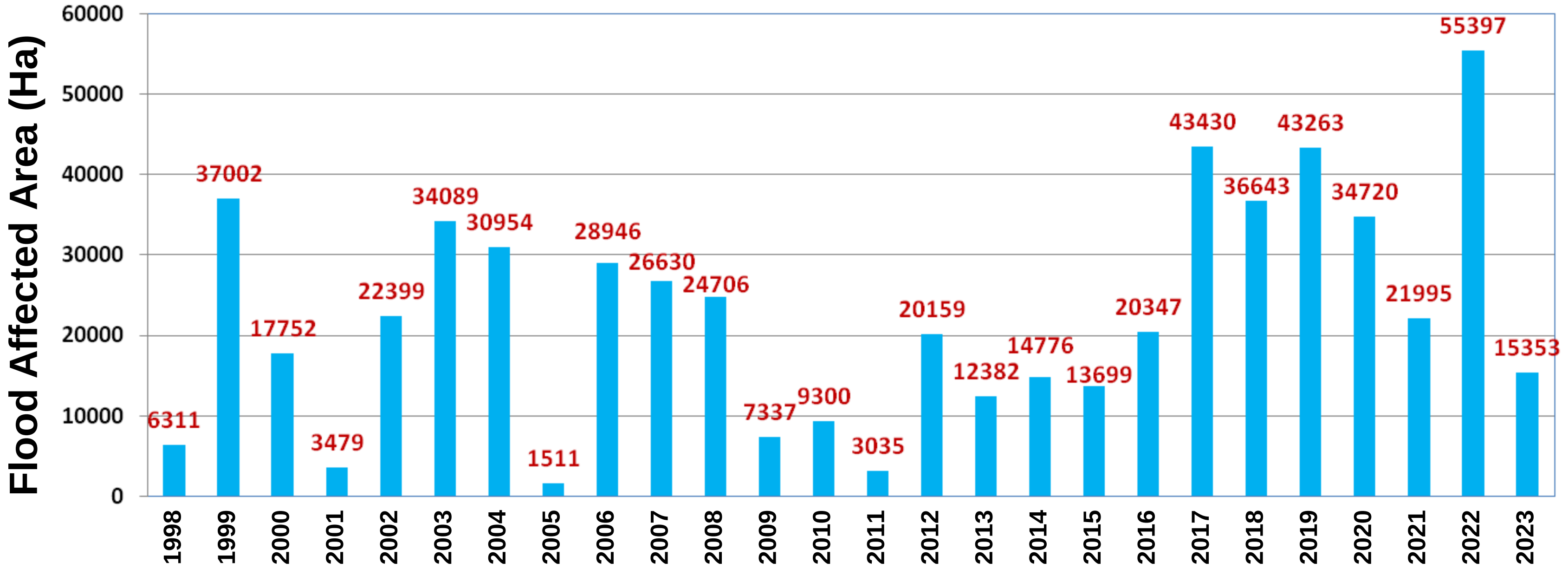
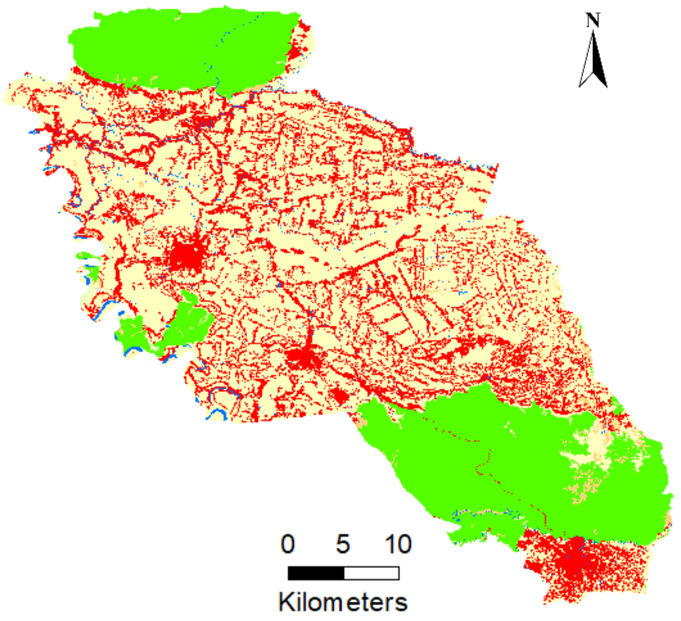
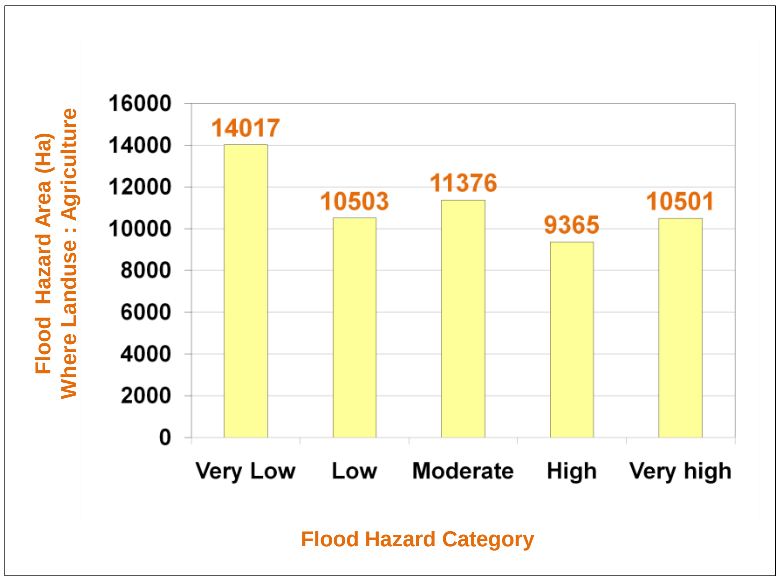
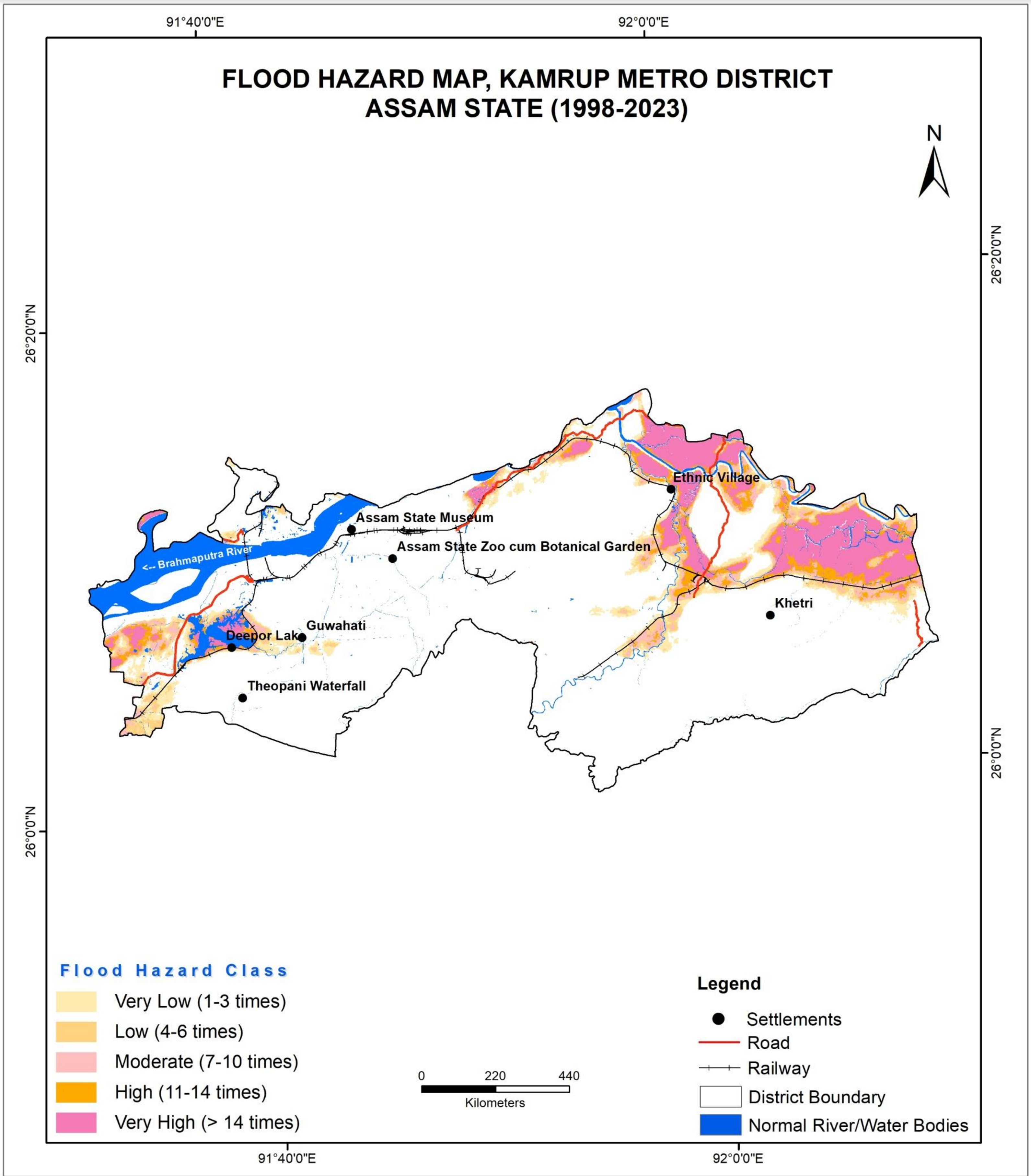
Annual Flood Affected Area in Hojai District during 1998-2023



Land Use Land Cover map of Hojai District

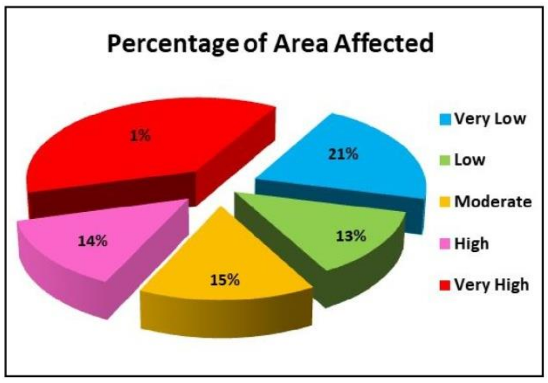

N
0 5 10
Kilometers
🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
Wastelands
Others




FLOOD HAZARD MAP, KAMRUP METRO DISTRICT
ASSAM STATE (1998-2023)
N
91°40'0"E
92°0'0"E
26°20'0"N
26°0'0"N
<-- Brahmaputra River
Assam State Museum
Assam State Zoo cum Botanical Garden
Ethnic Village
Guwahati
Deepor Lake
Theopani Waterfall
Khetri
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	4479
2	Low	2849
3	Moderate	3293
4	High	3018
5	Very High	8186



Prepared by
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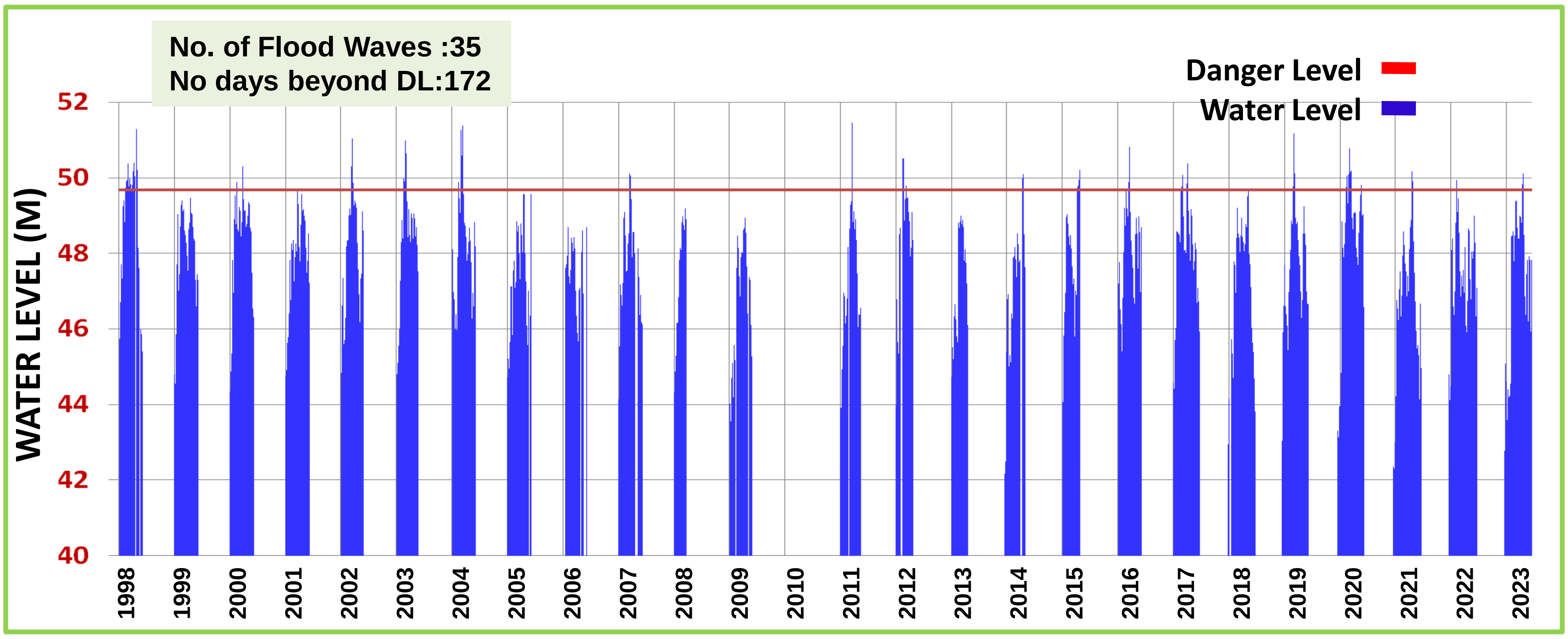
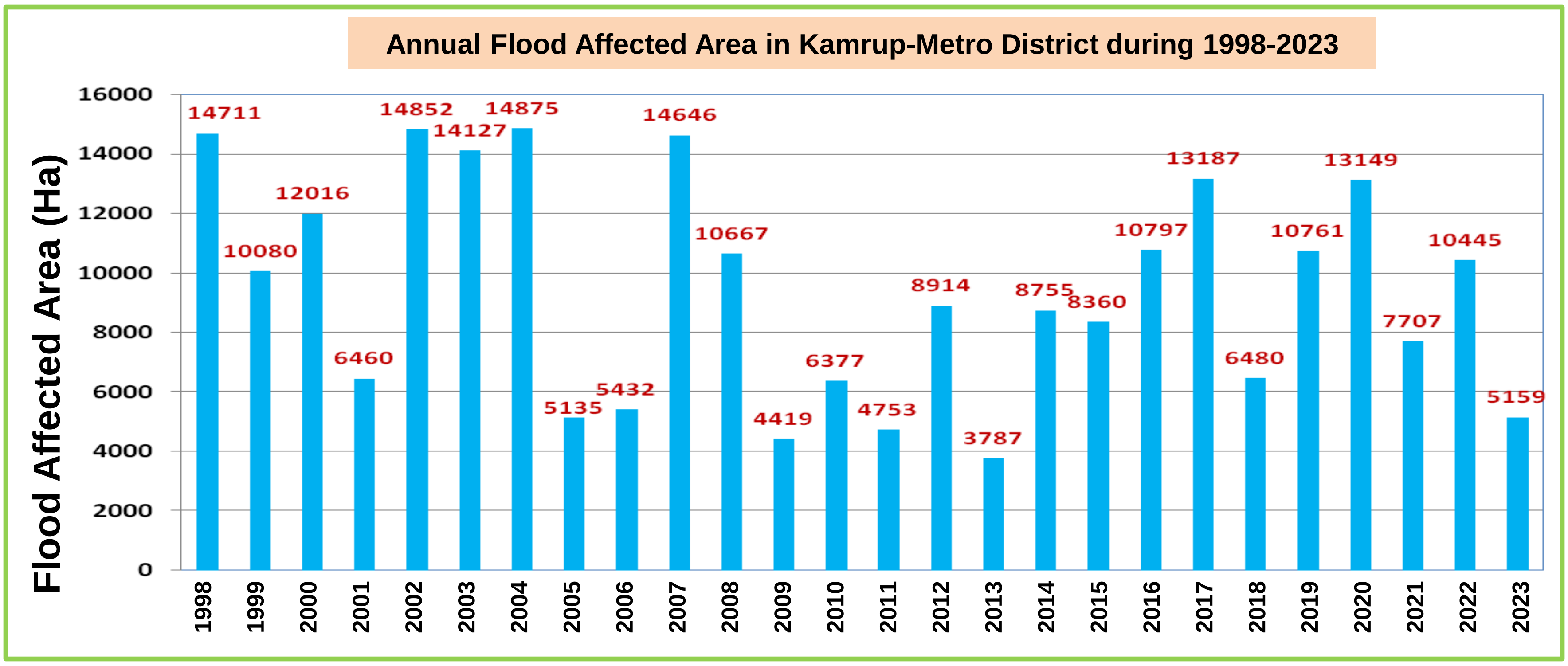
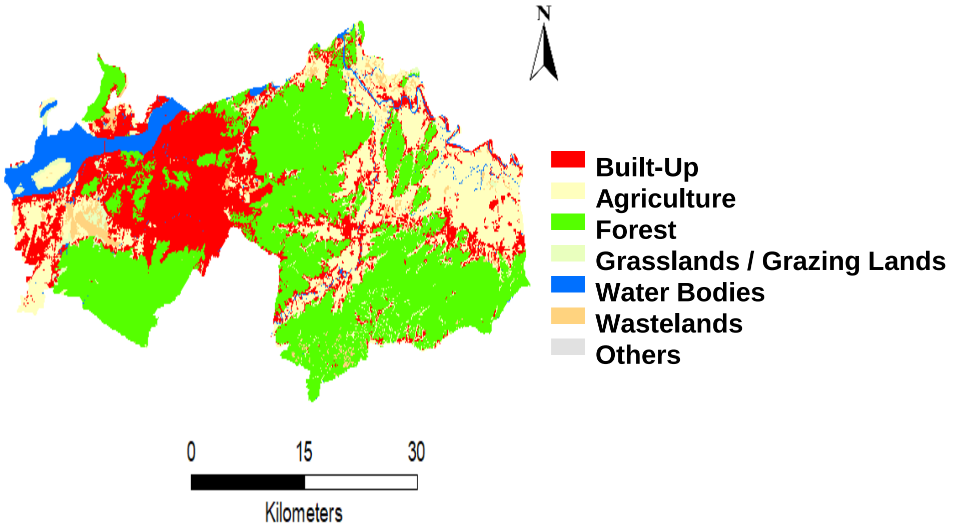
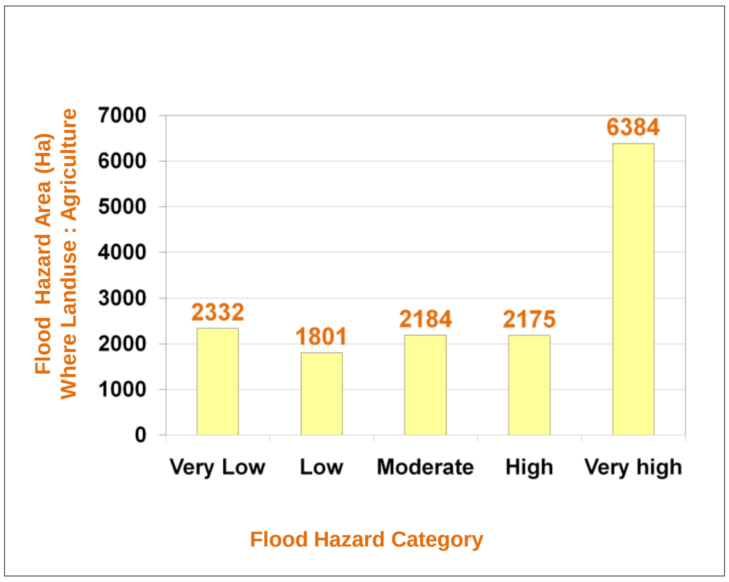


Water Levels at Guwahati Gauge Station during 1998-2023 (May-Oct)

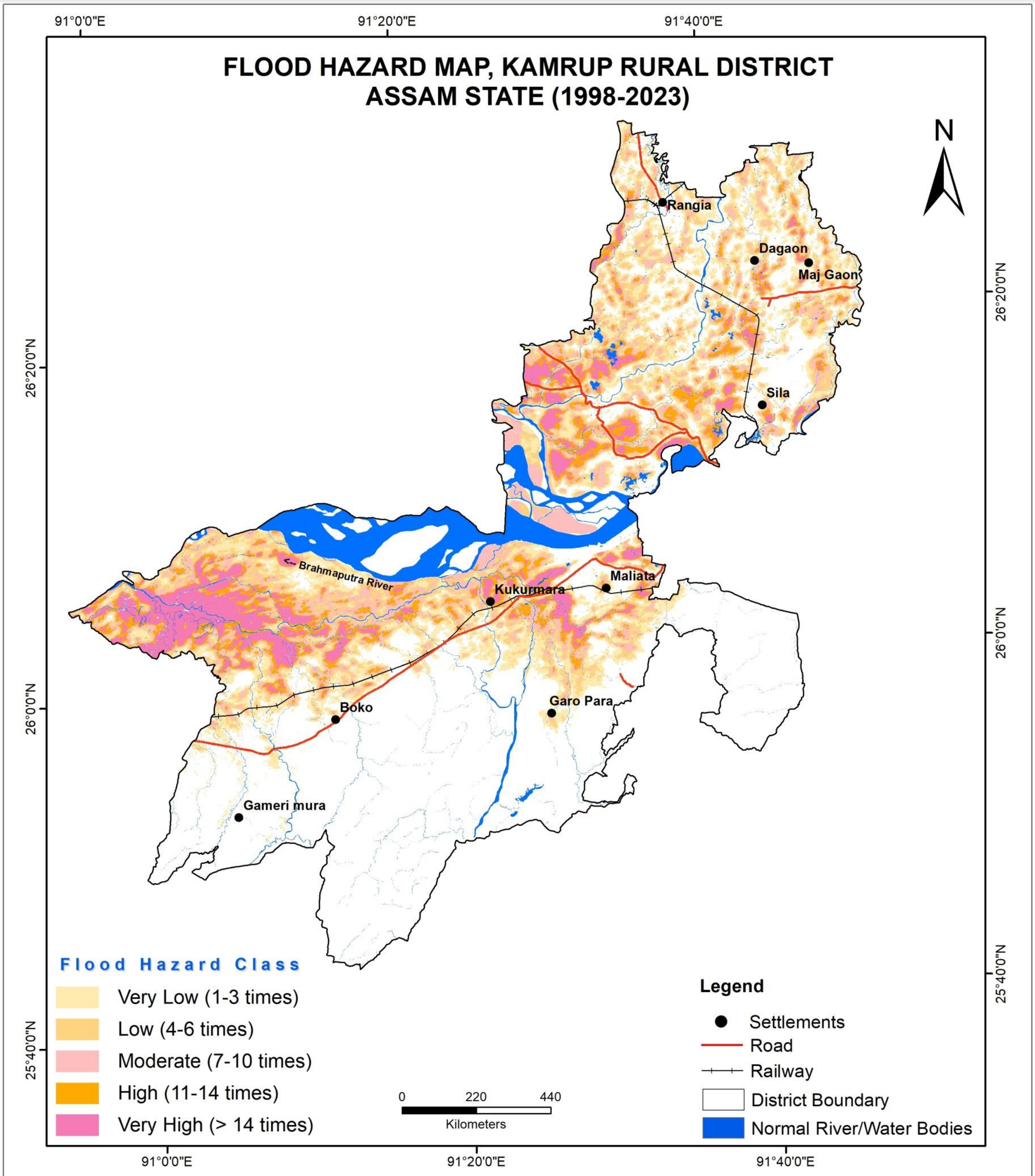


Land Use Land Cover map of Kamrup-Metro District

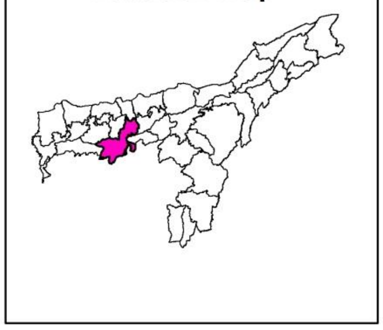

N
🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others
0
15
30
Kilometers



FLOOD HAZARD MAP, KAMRUP RURAL DISTRICT ASSAM STATE (1998-2023)

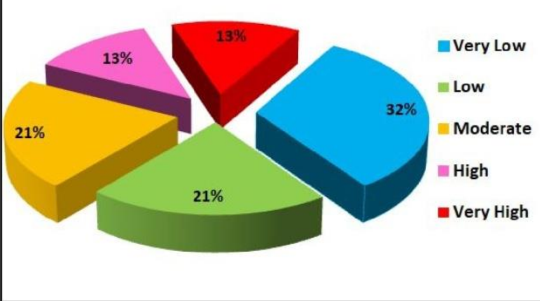

91°0'0"E
91°20'0"E
91°40'0"E
26°20'0"N
26°0'0"N
25°40'0"N
N
Rangia
Dagaon
Maj Gaon
Sila
<-- Brahmaputra River
Kukurmara
Maliata
Boko
Garo Para
Gameri mura
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0 220 440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	44127
2	Low	28533
3	Moderate	29369
4	High	17419
5	Very High	18406

Percentage of Area Affected



Prepared by
National Remote Sensing Centre (NRSC)
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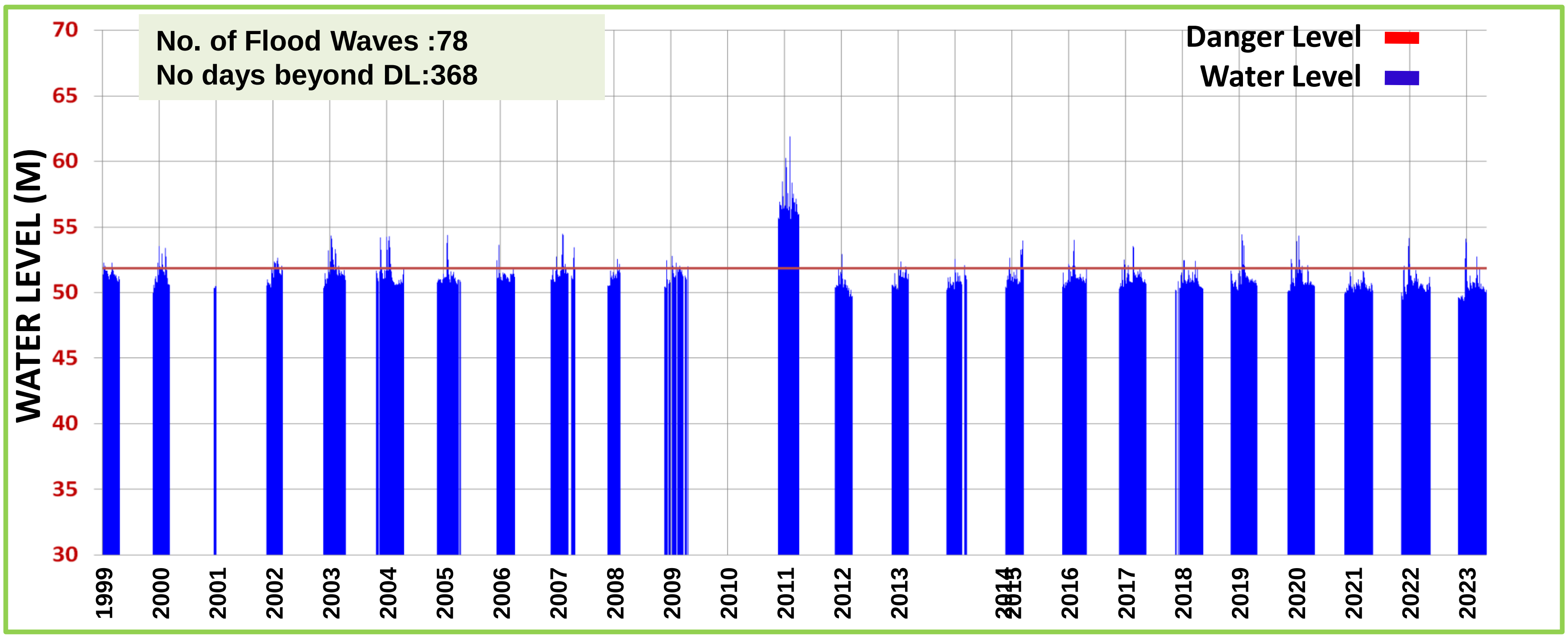
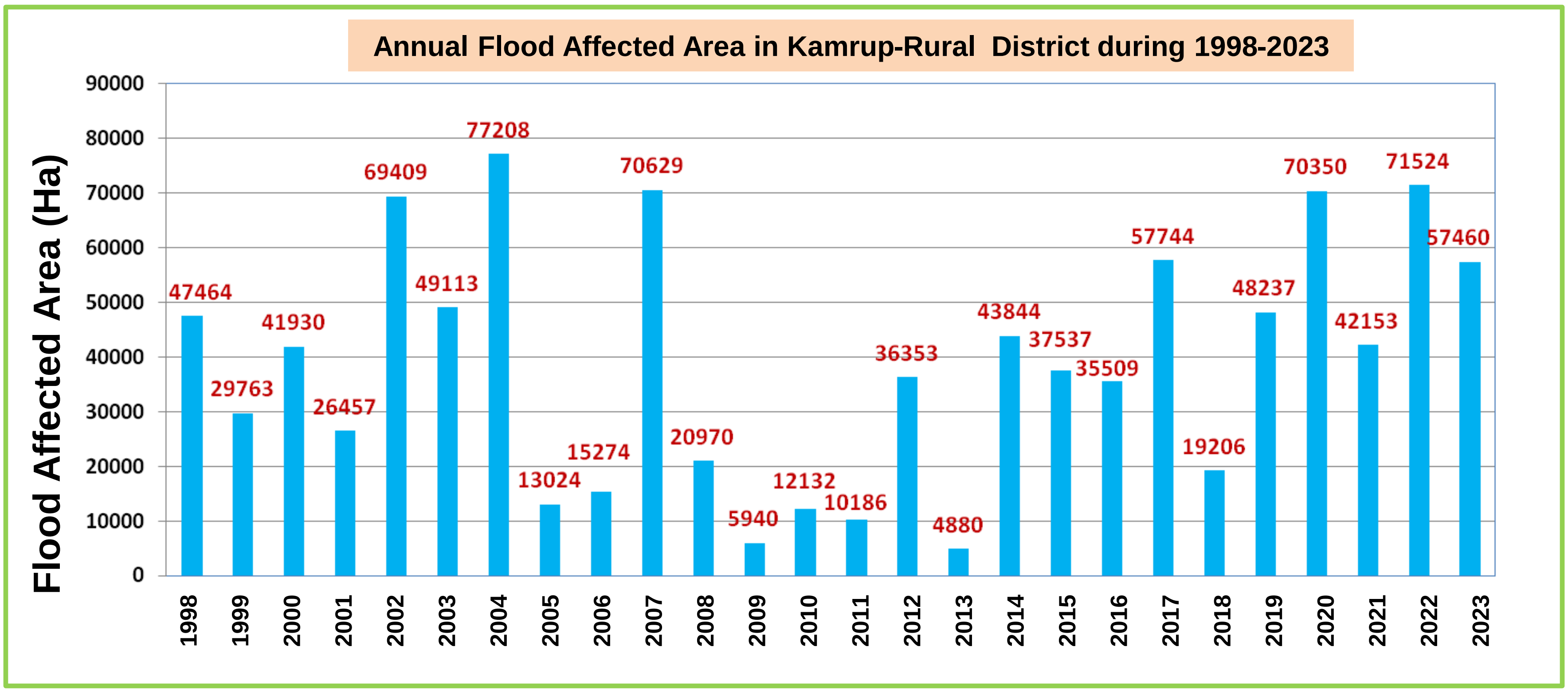
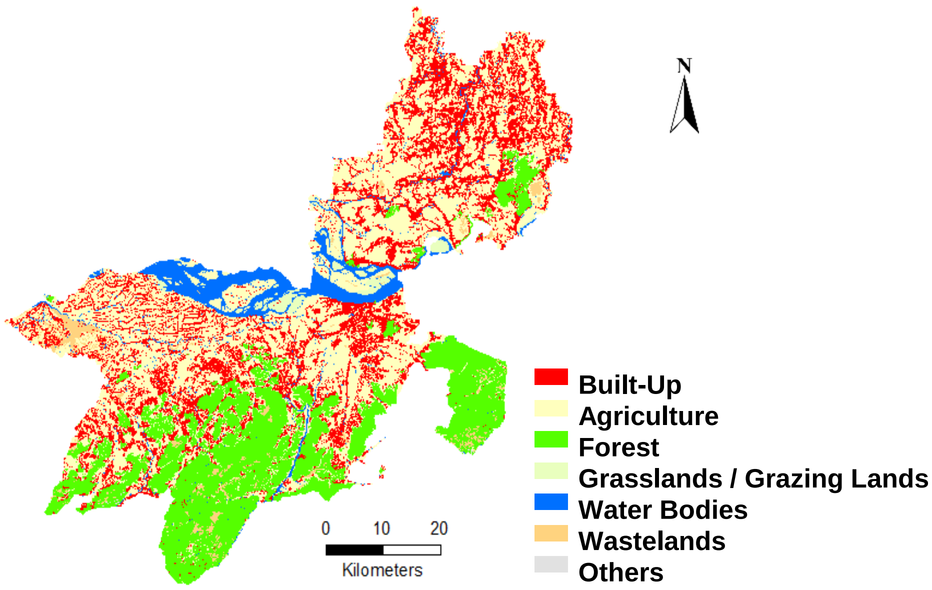
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

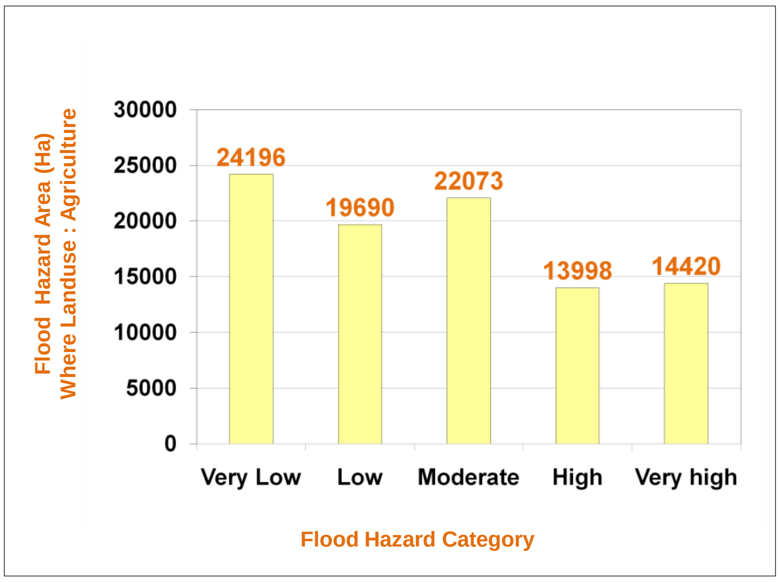


Water Levels at N.H.Rd.Xing (Kamrup) Gauge Station during 1998-2023 (May-Oct)

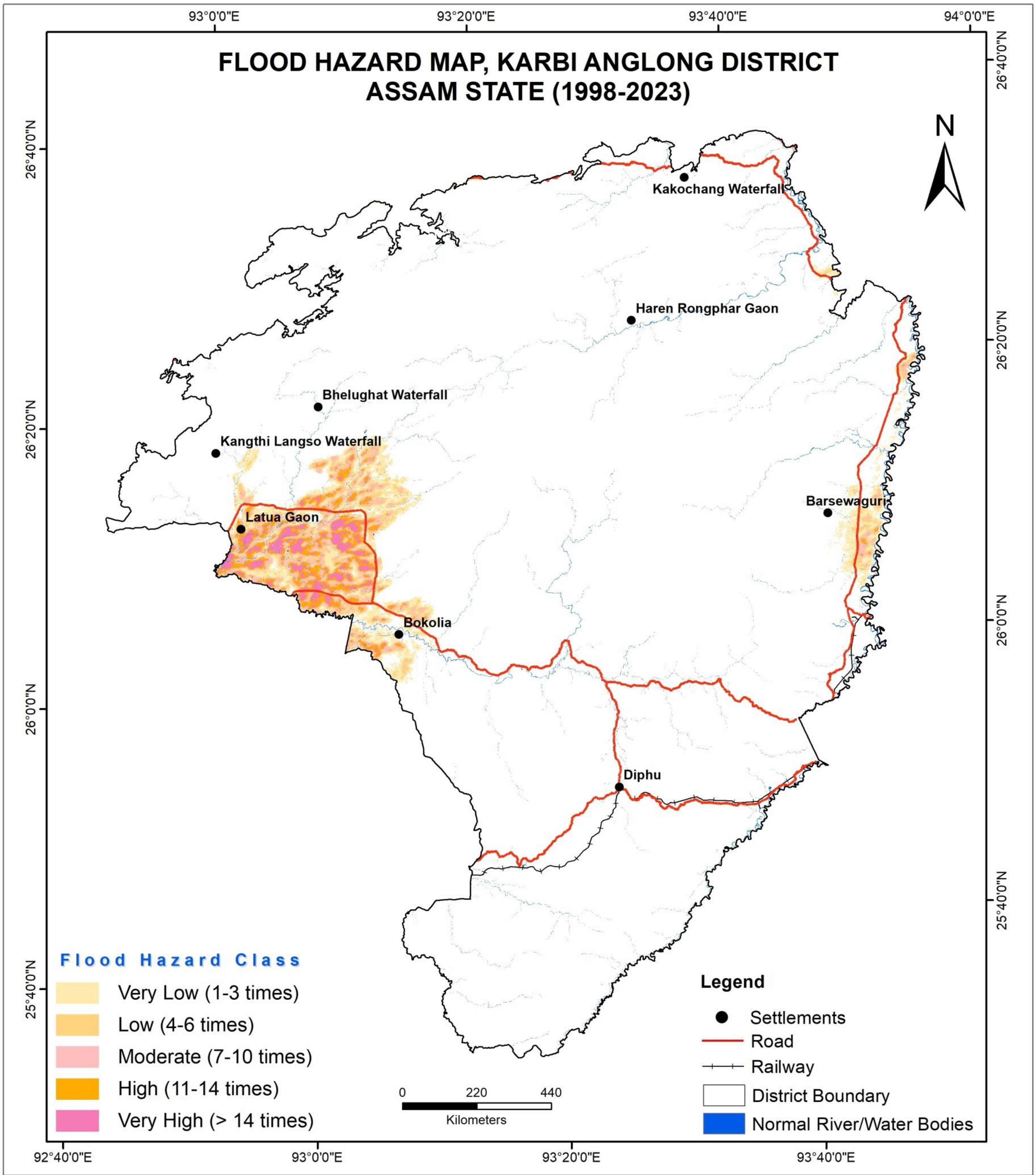


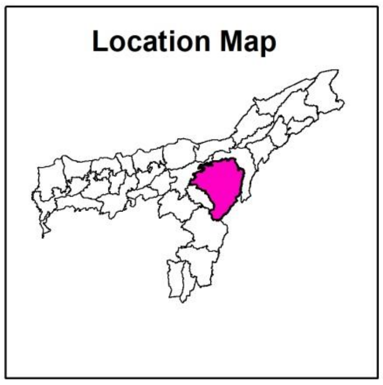
Land Use Land Cover map of Kamrup-Rural District


N
0
10
20
Kilometers
🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
Wastelands
Others



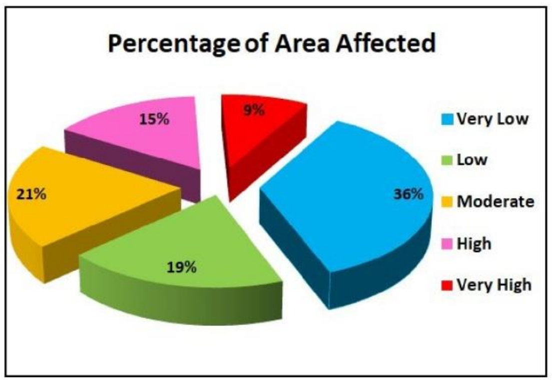
FLOOD HAZARD MAP, KARBI ANGLONG DISTRICT ASSAM STATE (1998-2023)


93°0'0"E
93°20'0"E
93°40'0"E
94°0'0"E
92°40'0"E
26°40'0"N
26°20'0"N
26°0'0"N
25°40'0"N
N
Kakochang Waterfall
Haren Rongphar Gaon
Bhelughat Waterfall
Kangthi Langso Waterfall
Latua Gaon
Barsewaguri
Bokolia
Diphu
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies



Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	16381
2	Low	8728
3	Moderate	9356
4	High	7037
5	Very High	4148



Percentage of Area Affected

Prepared by
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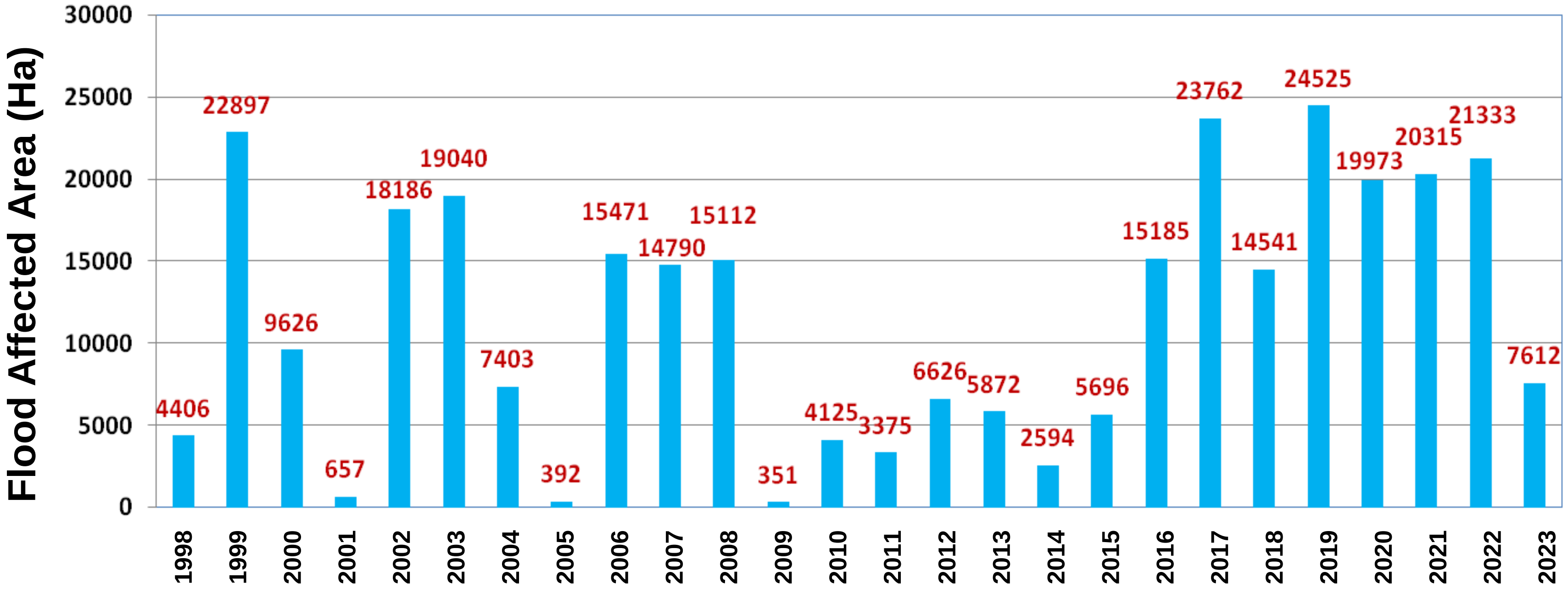
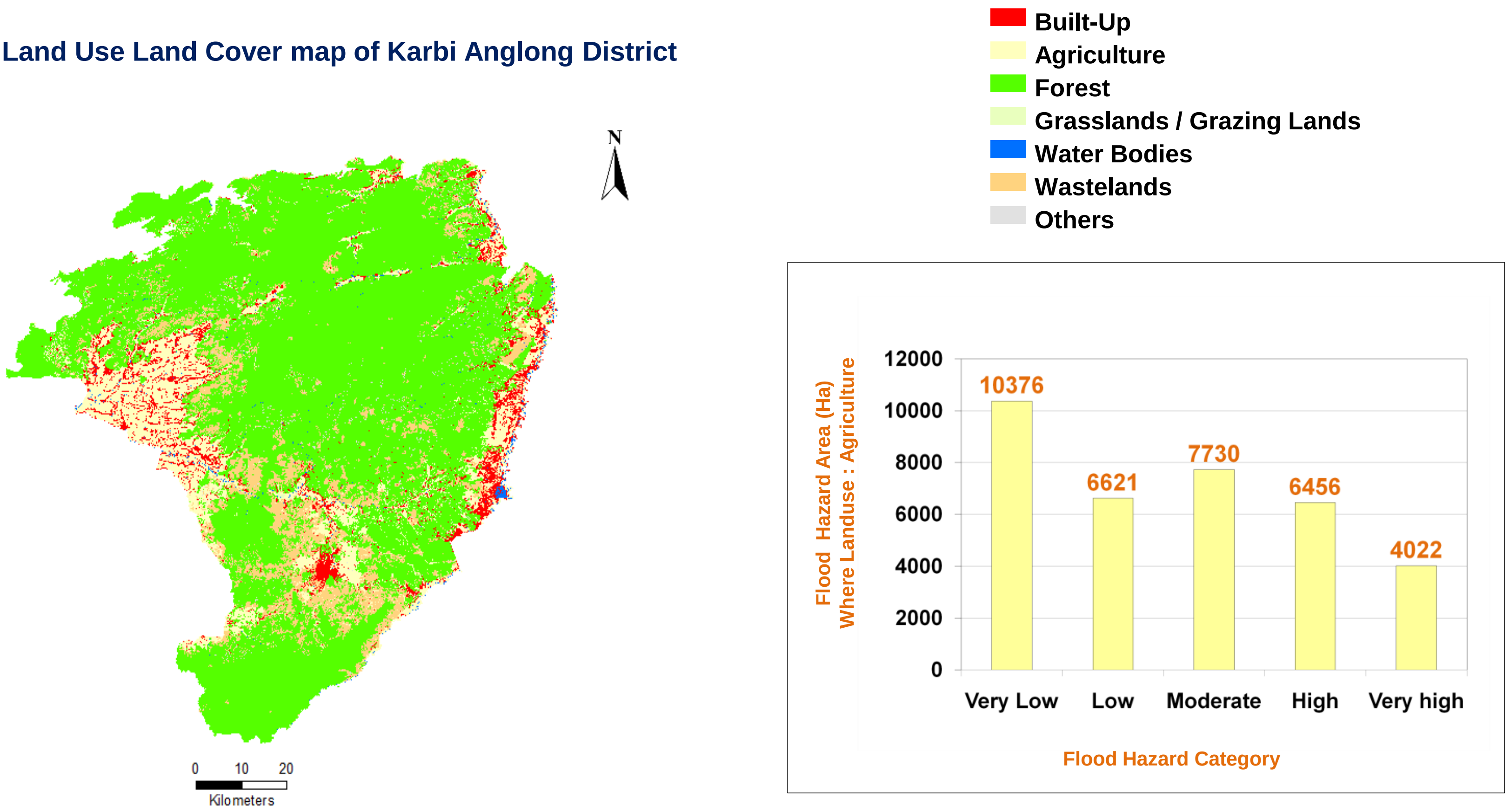
Indian Space Research Organisation (ISRO)
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

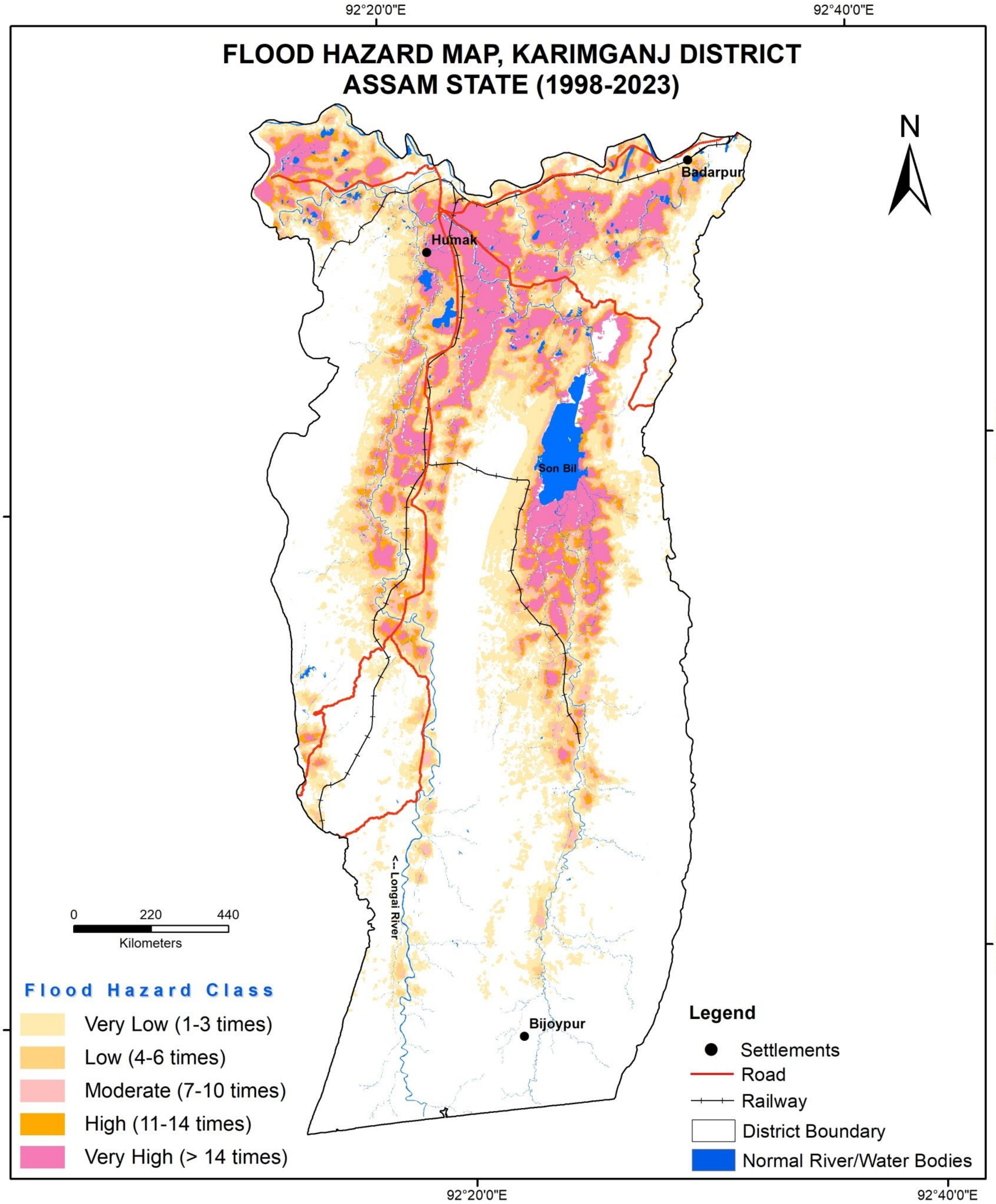
Annual Flood Affected Area in Karbi Anglong District during 1998-2023



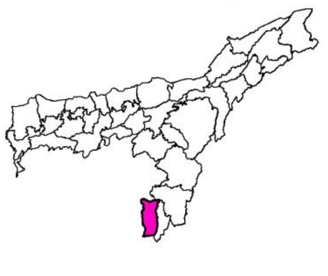
Land Use Land Cover map of Karbi Anglong District


🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others
N
0 10 20
Kilometers
Flood Hazard Area (Ha)
Where Landuse : Agriculture
12000
10000
8000
6000
4000
2000
0
Very Low 10376
Low 6621
Moderate 7730
High 6456
Very high 4022
Flood Hazard Category

FLOOD HAZARD MAP, KARIMGANJ DISTRICT ASSAM STATE (1998-2023)

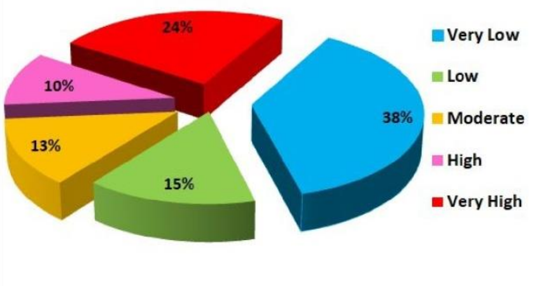

92°20'0"E
92°40'0"E
N
Badarpur
Humak
Son Bil
<-- Longai River
Bijoypur
24°40'0"N
24°20'0"N
0
220
440
Kilometers
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	28380
2	Low	11095
3	Moderate	9788
4	High	7905
5	Very High	18208

Percentage of Area Affected



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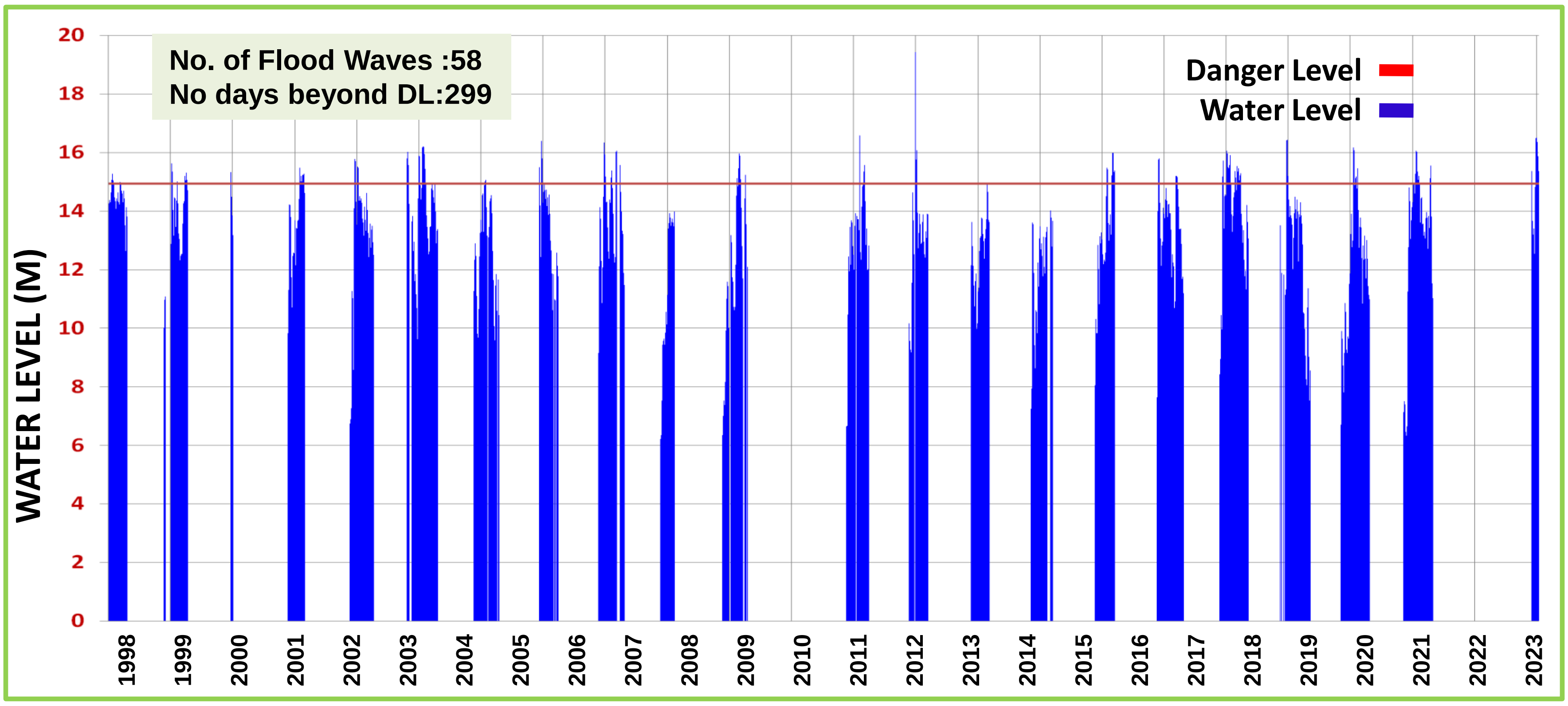
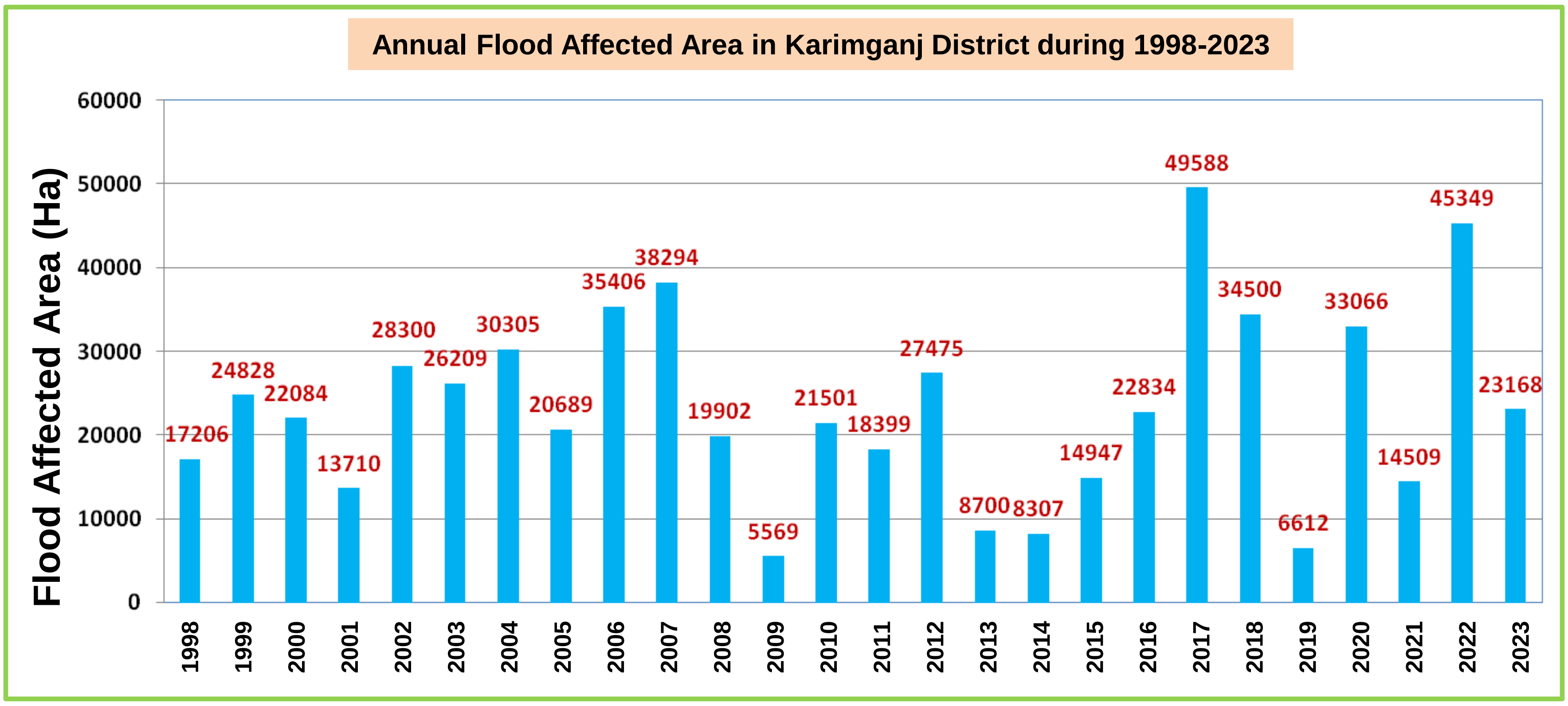
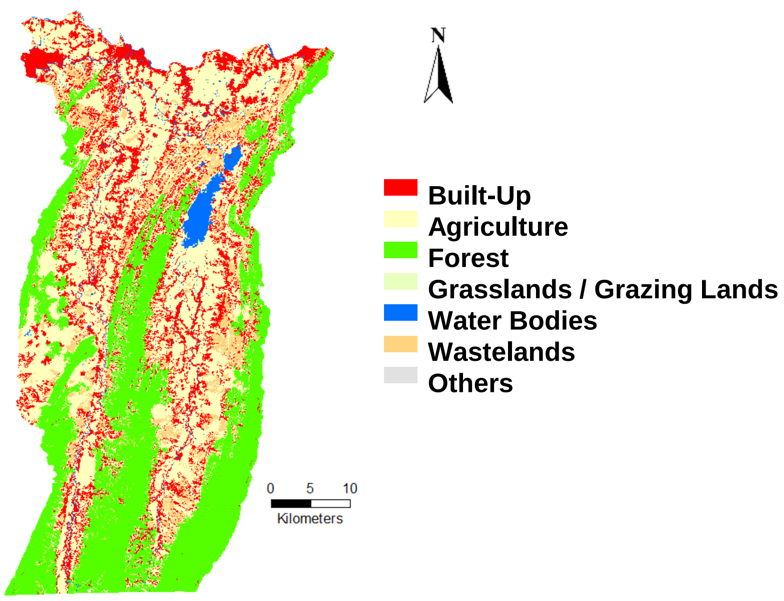
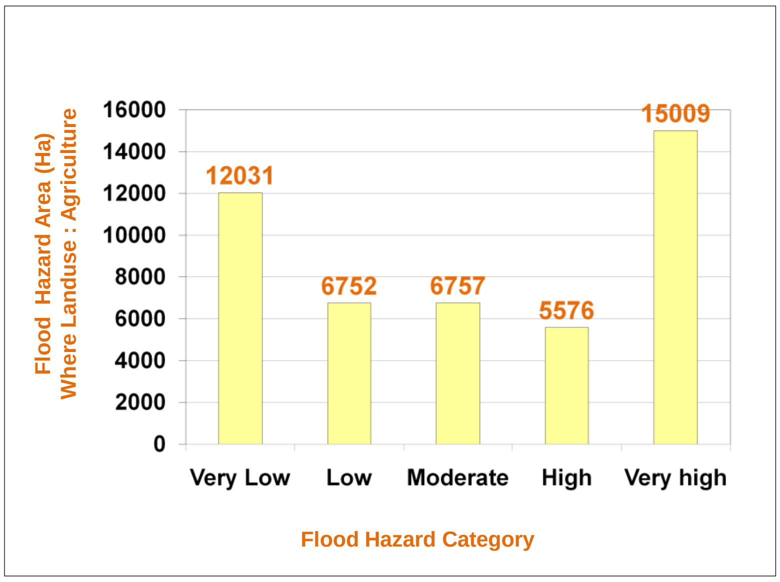


Water Levels at Karimganj Gauge Station during 1998-2023 (May-Oct)

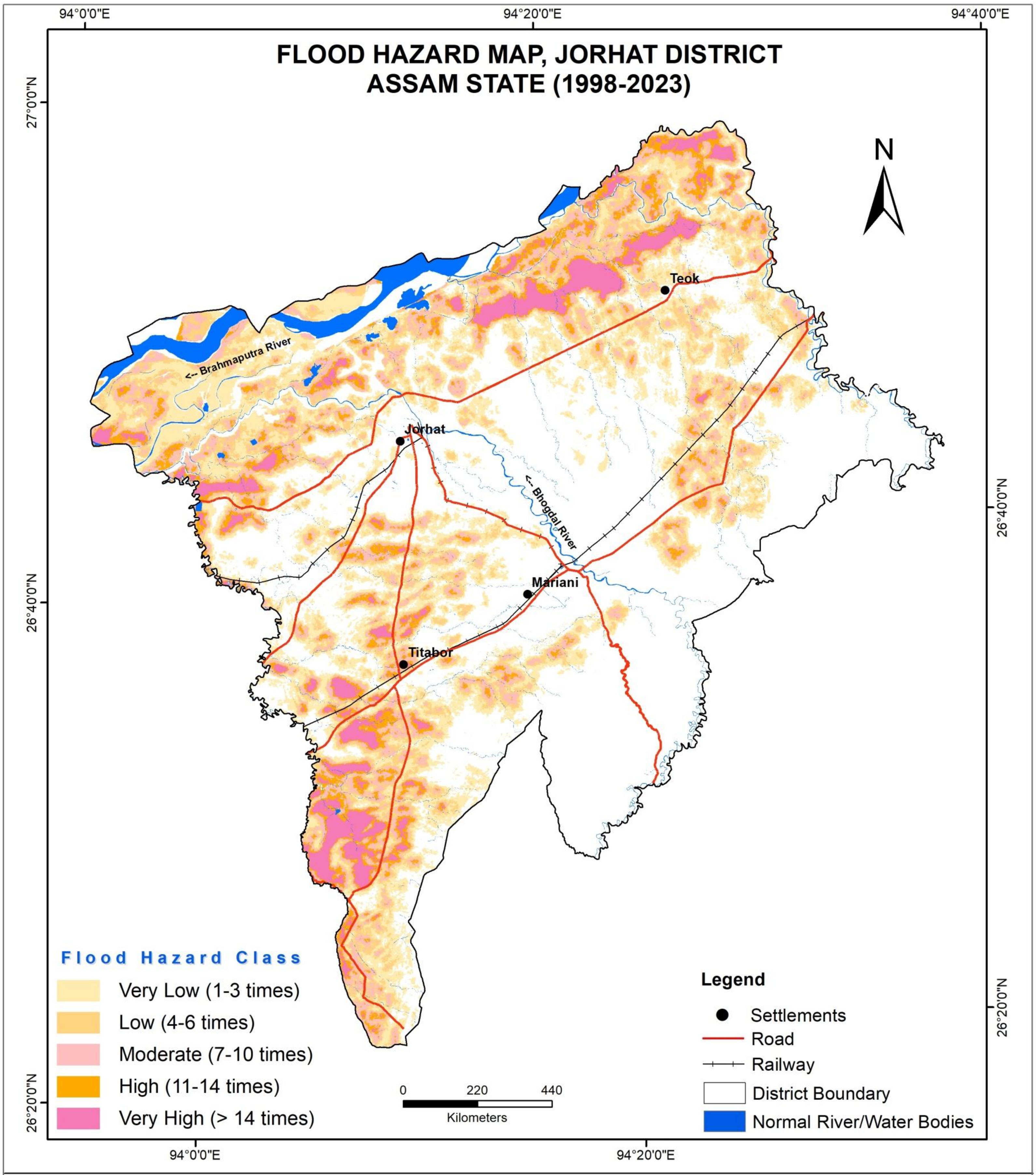

Annual Flood Affected Area in Karimganj District during 1998-2023

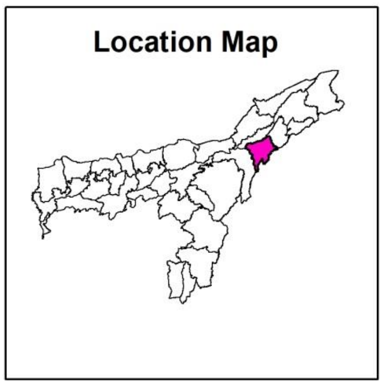
Land Use Land Cover map of Karimganj District


N
🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
Wastelands
Others
0
5
10
Kilometers

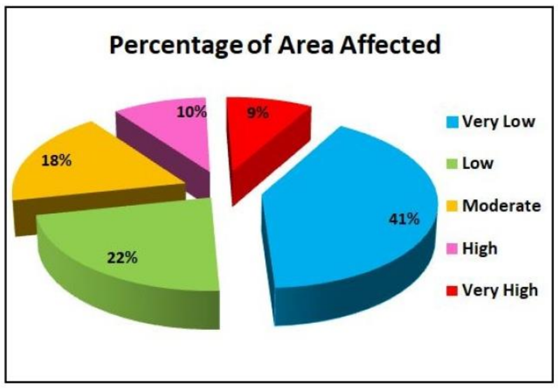


FLOOD HAZARD MAP, JORHAT DISTRICT ASSAM STATE (1998-2023)


94°0'0"E
94°20'0"E
94°40'0"E
27°0'0"N
26°40'0"N
26°20'0"N
N
Teok
Jorhat
Mariani
Titabor
<-- Brahmaputra River
<-- Bhogdoi River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies


Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	37933
2	Low	20899
3	Moderate	16783
4	High	8971
5	Very High	8232



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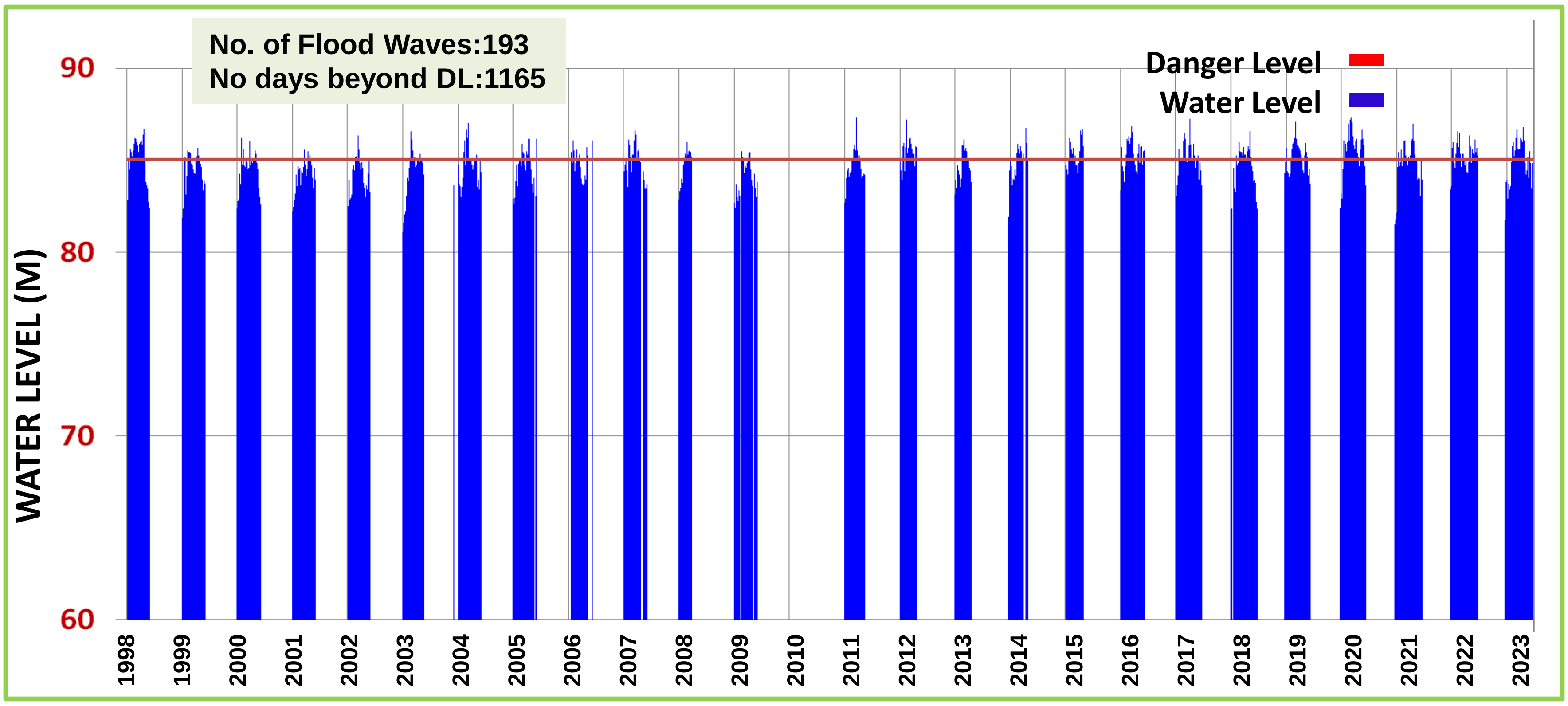
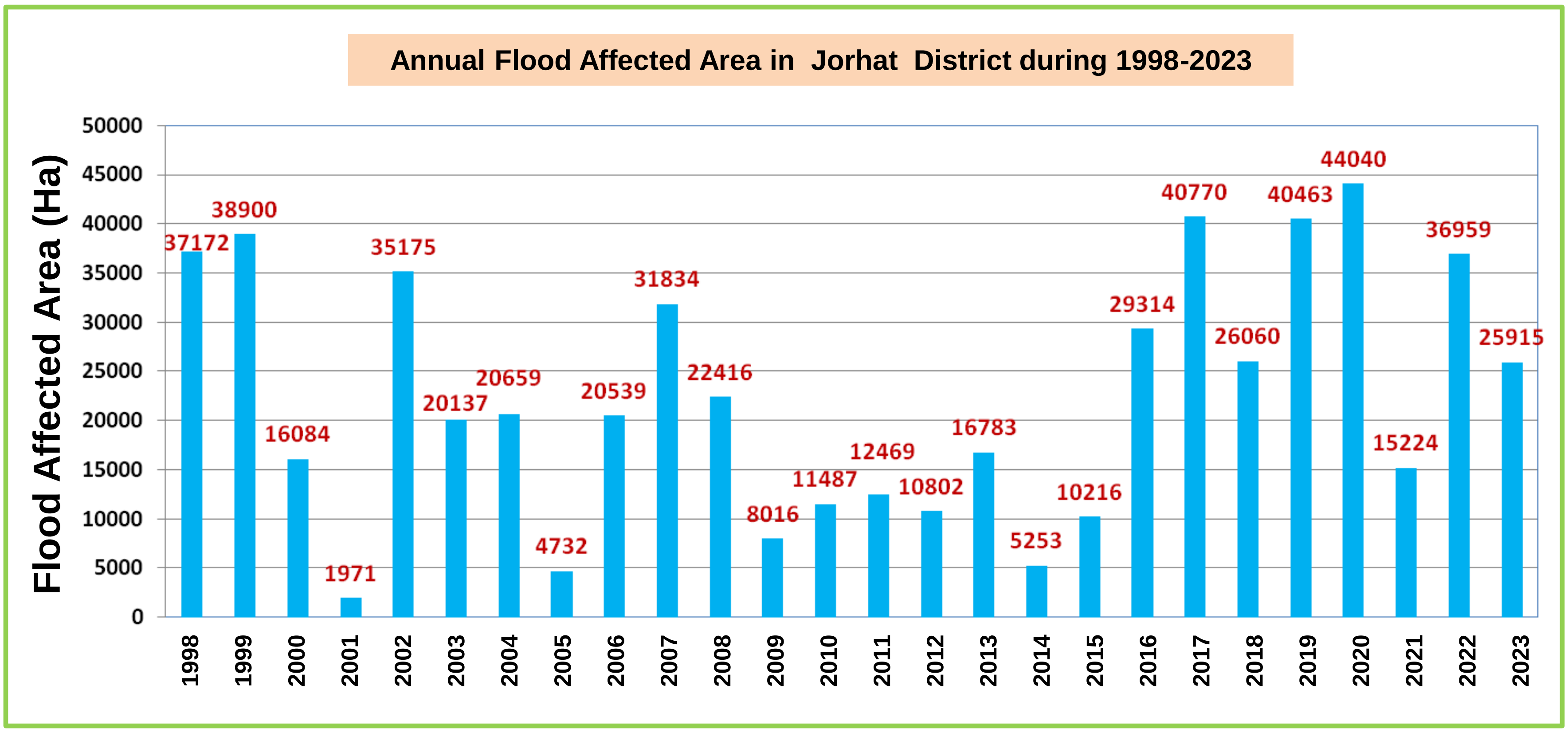
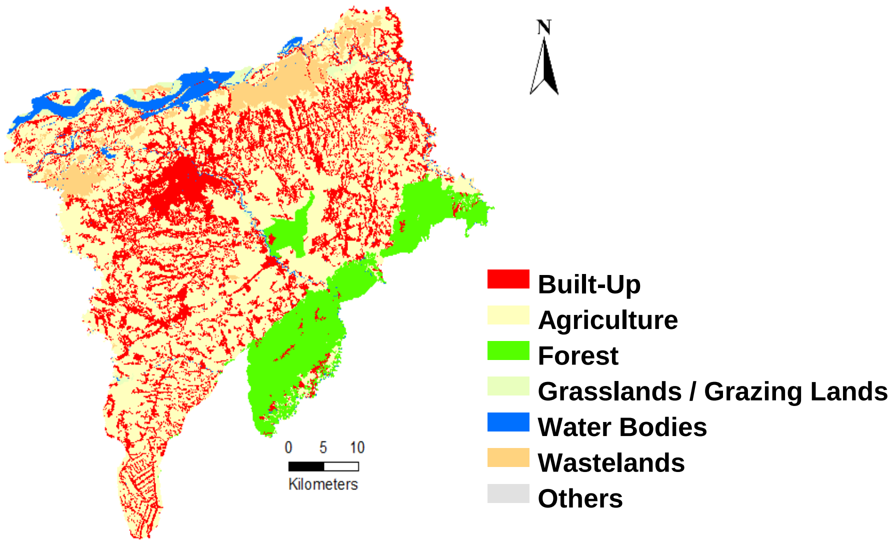
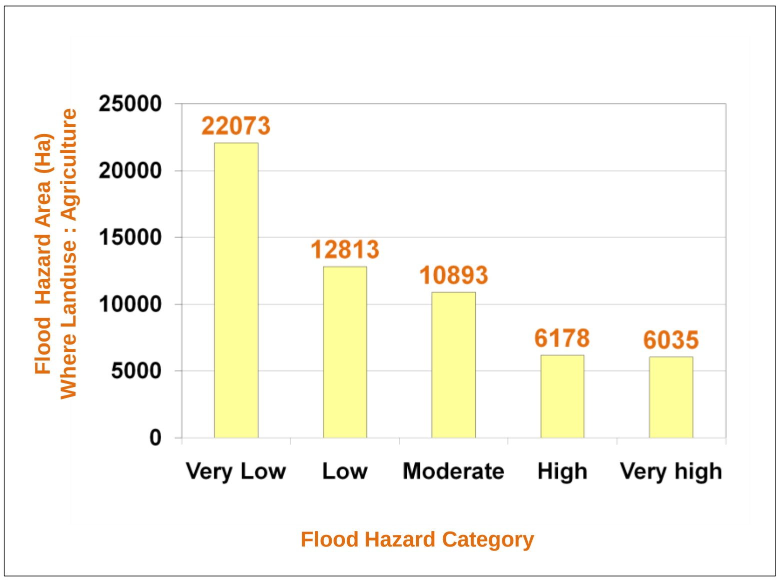


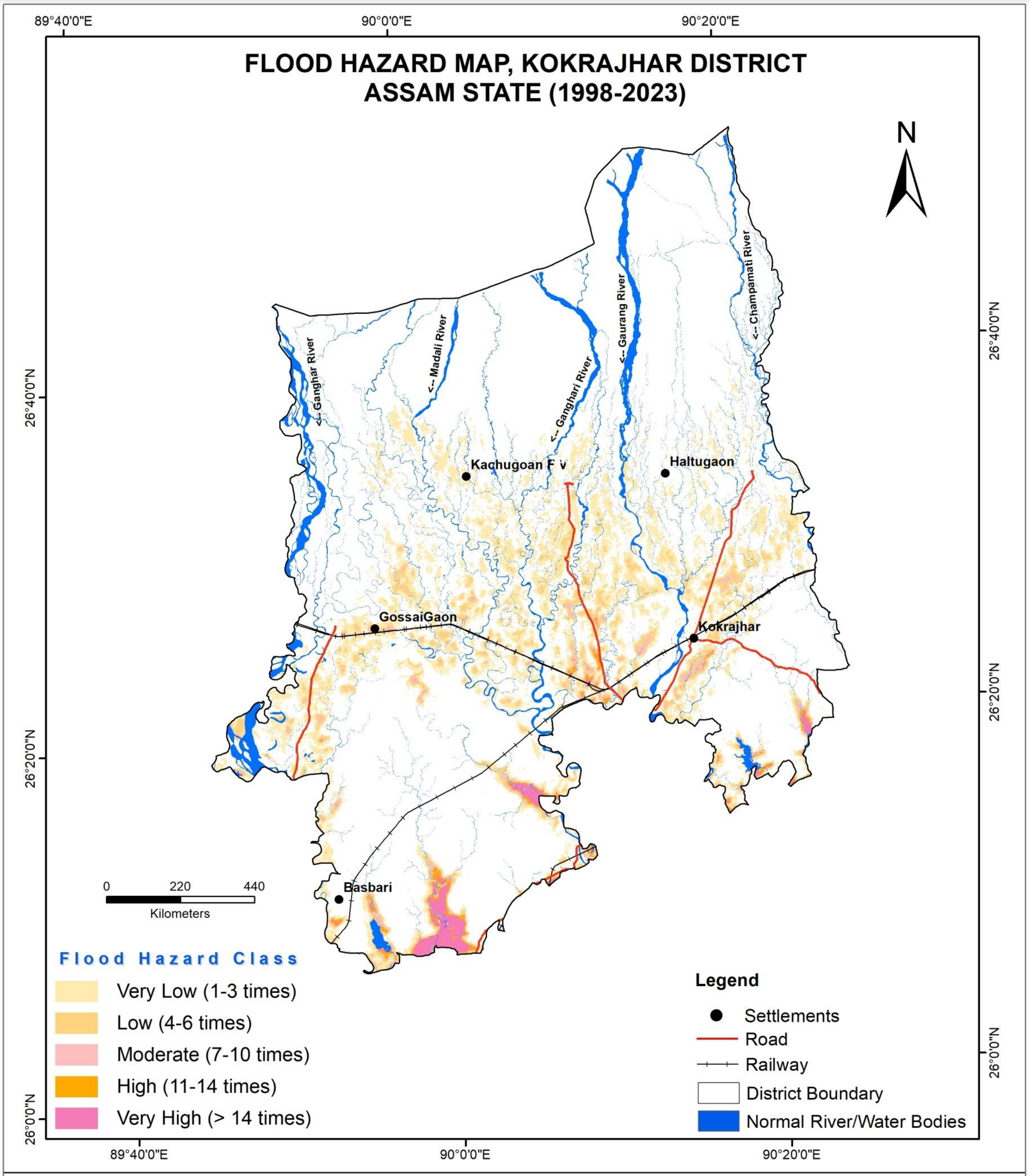
Water Levels at Neamatighat Gauge Station during 1998-2023 (May-Oct)


Annual Flood Affected Area in Jorhat District during 1998-2023

Land Use Land Cover map of Jorhat District


N
0 5 10
Kilometers
🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others





FLOOD HAZARD MAP, KOKRAJHAR DISTRICT ASSAM STATE (1998-2023)

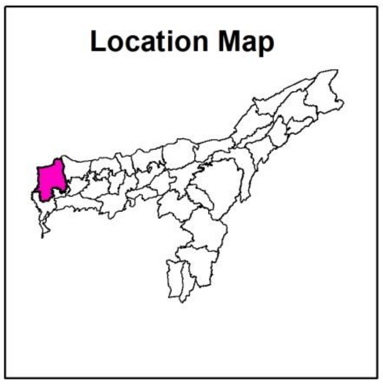
89°40'0"E
90°0'0"E
90°20'0"E
26°40'0"N
26°20'0"N
26°0'0"N
N
<-- Ganghar River
<-- Madali River
<-- Ganghari River
<-- Gaurang River
<-- Champamati River
Kachugoan F V
Haltugaon
GossaiGaon
Kokrajhar
Basbari
0
220
440
Kilometers

Flood Hazard Class

- 🟨 Very Low (1-3 times)
- 🟧 Low (4-6 times)
- 🟥 Moderate (7-10 times)
- 🟧 High (11-14 times)
- 🟪 Very High (> 14 times)

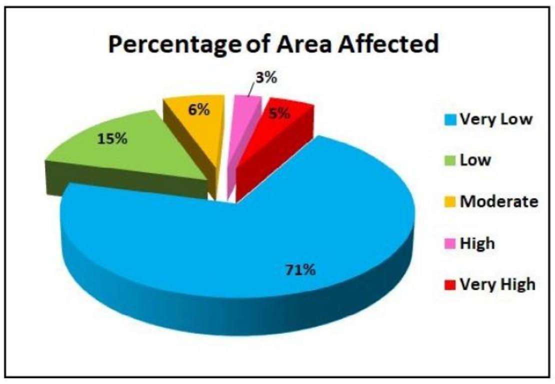
Legend

- ● Settlements
- — Road
- +–+ Railway
- ☐ District Boundary
- 🟦 Normal River/Water Bodies



Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	38308
2	Low	8363
3	Moderate	3431
4	High	1515
5	Very High	2562



Percentage of Area Affected

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Indian Space Research Organisation (ISRO)
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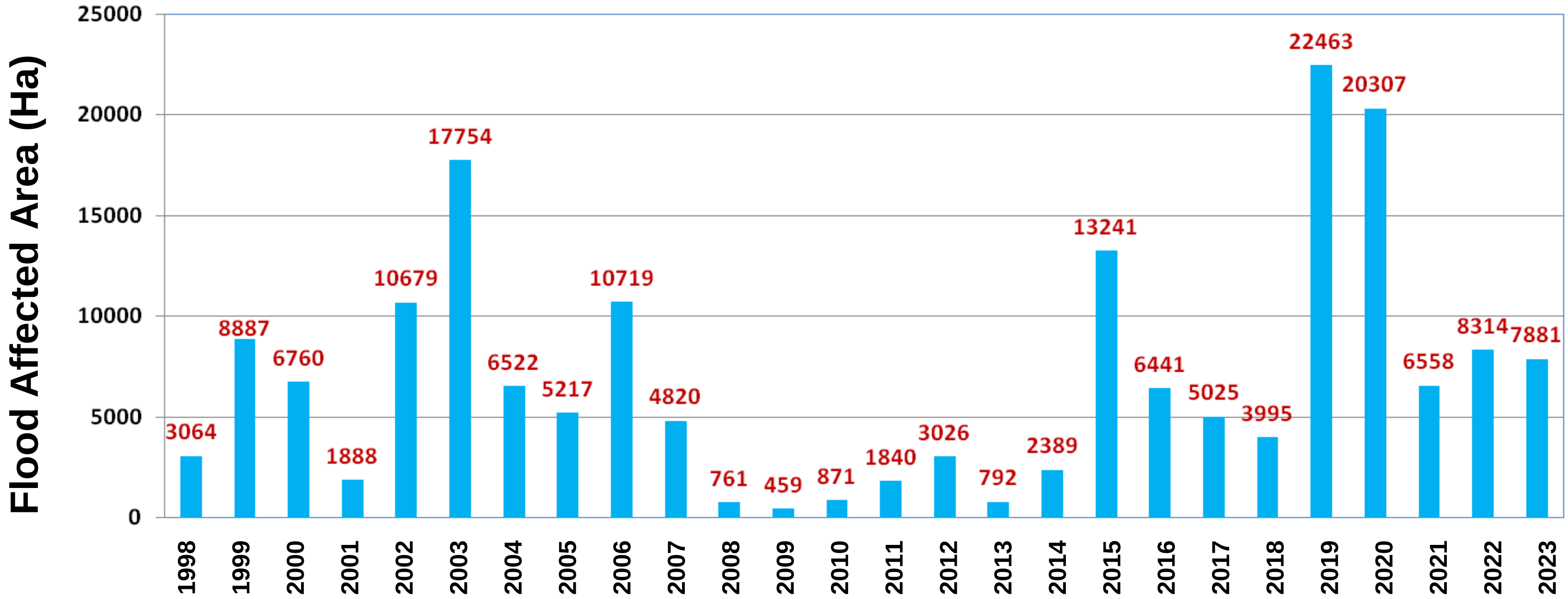
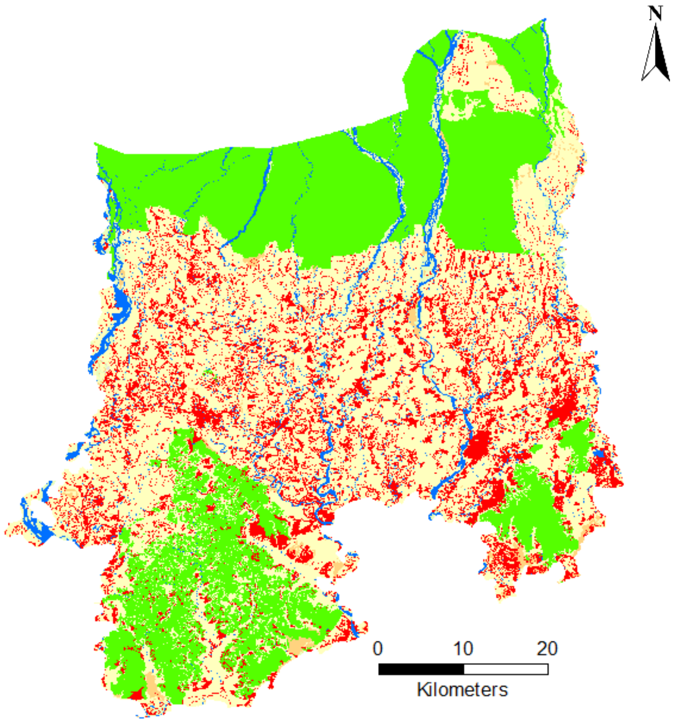
Balanagar, Hyderabad - 500 037

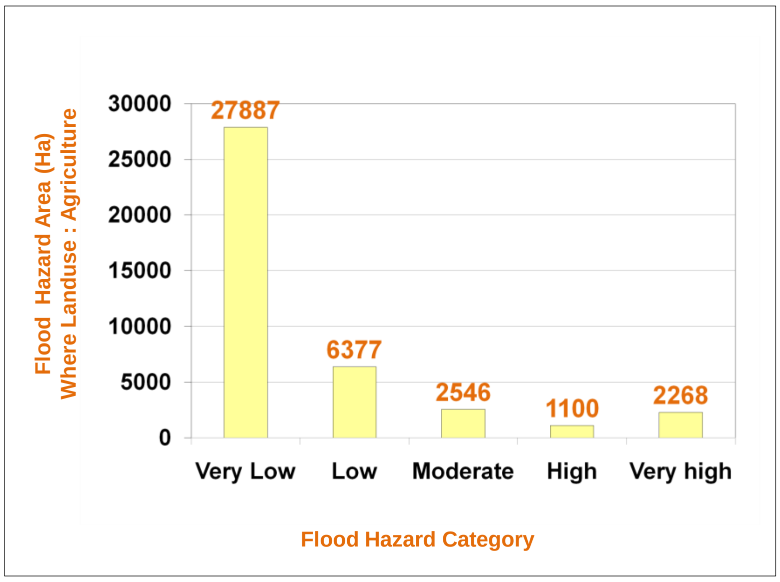
Annual Flood Affected Area in Kokrajhar District during 1998-2023



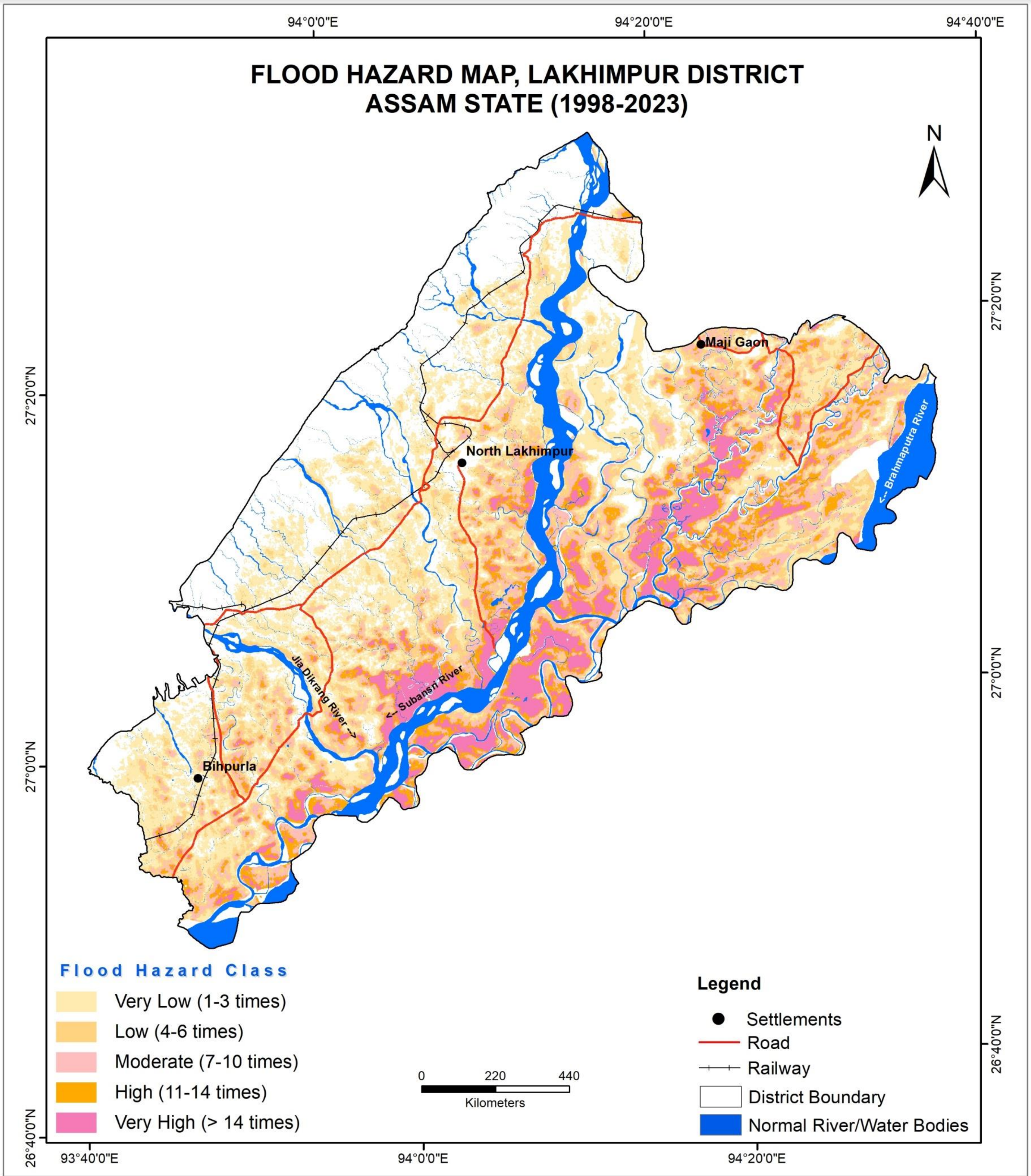
Land Use Land Cover map of Kokrajhar District

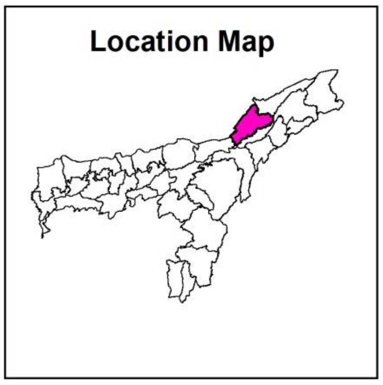


- 🟥 **Built-Up**
- ▨ **Agriculture**
- 🟩 **Forest**
- ▨ **Grasslands / Grazing Lands**
- 🟦 **Water Bodies**
- 🟧 **Wastelands**
- ⬜ **Others**

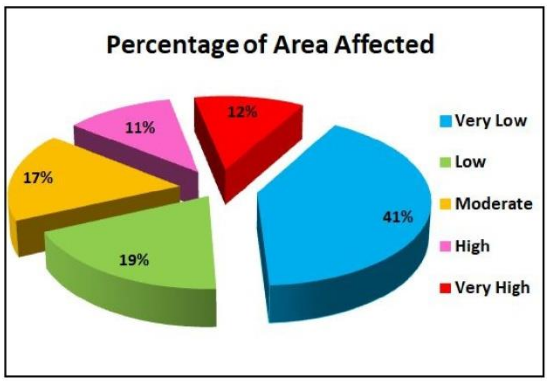


FLOOD HAZARD MAP, LAKHIMPUR DISTRICT ASSAM STATE (1998-2023)


94°0'0"E
94°20'0"E
94°40'0"E
27°20'0"N
27°0'0"N
26°40'0"N
93°40'0"E
N
Maji Gaon
North Lakhimpur
Bihpurla
Brahmaputra River
Subansiri River
Jia Dikrang River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies


Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	73729
2	Low	34261
3	Moderate	31047
4	High	20303
5	Very High	20651



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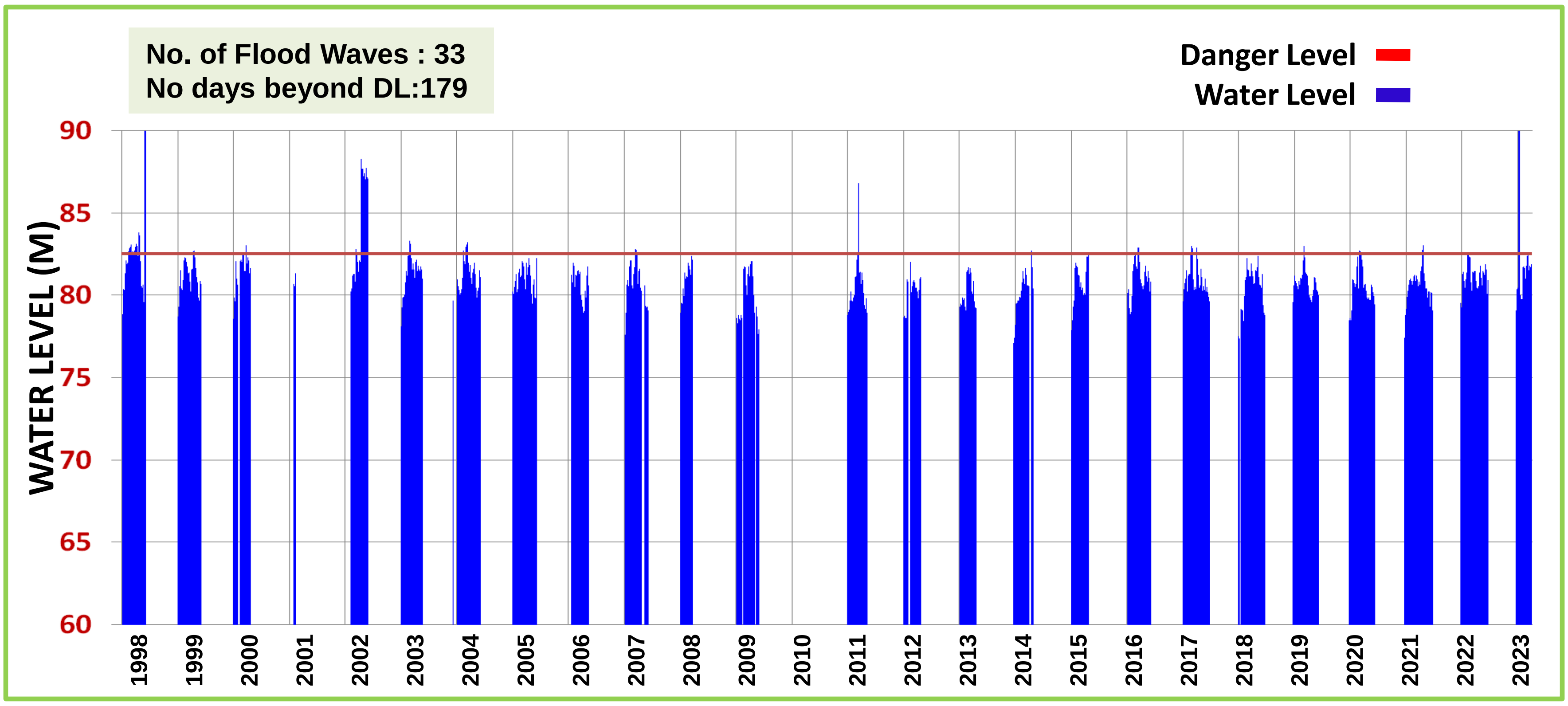
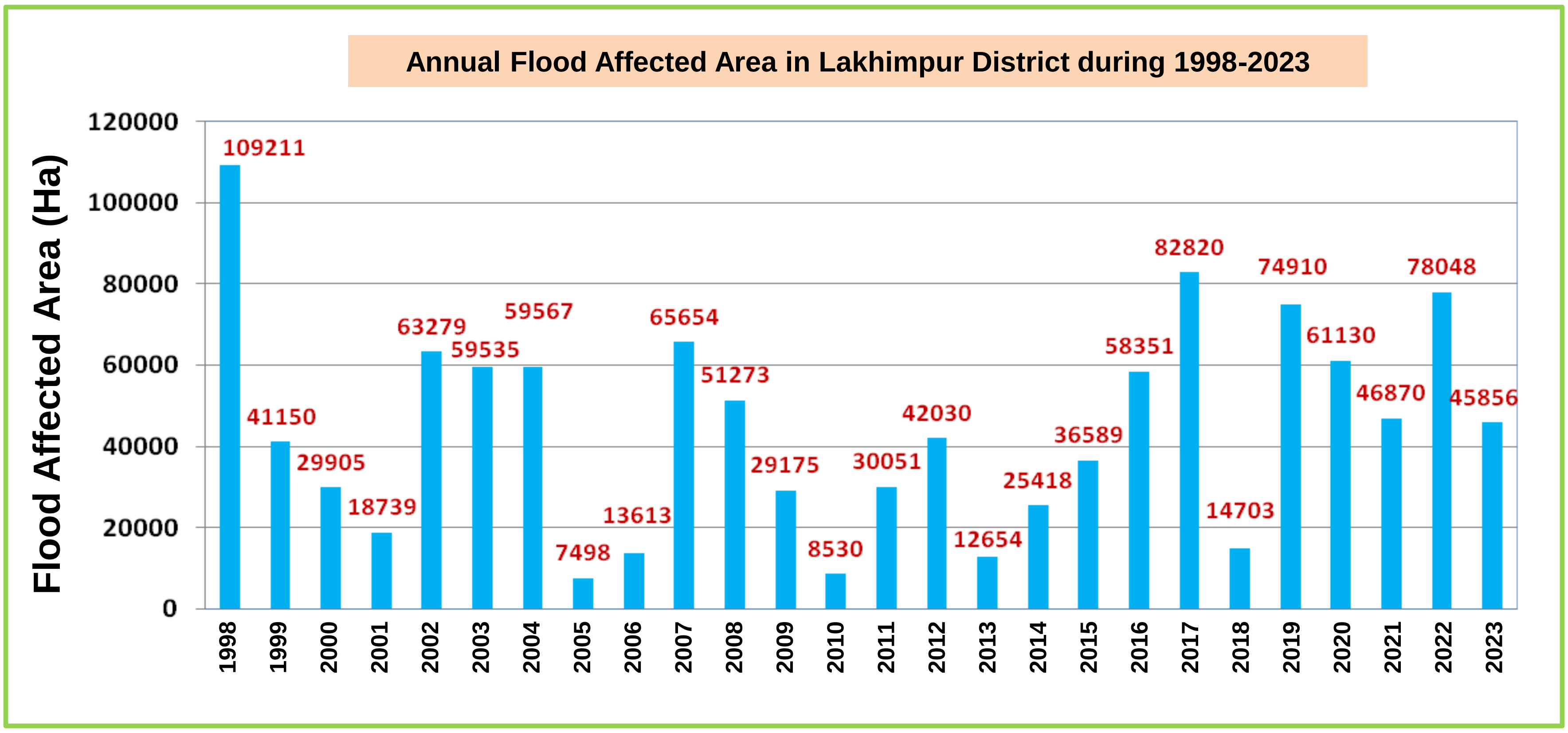
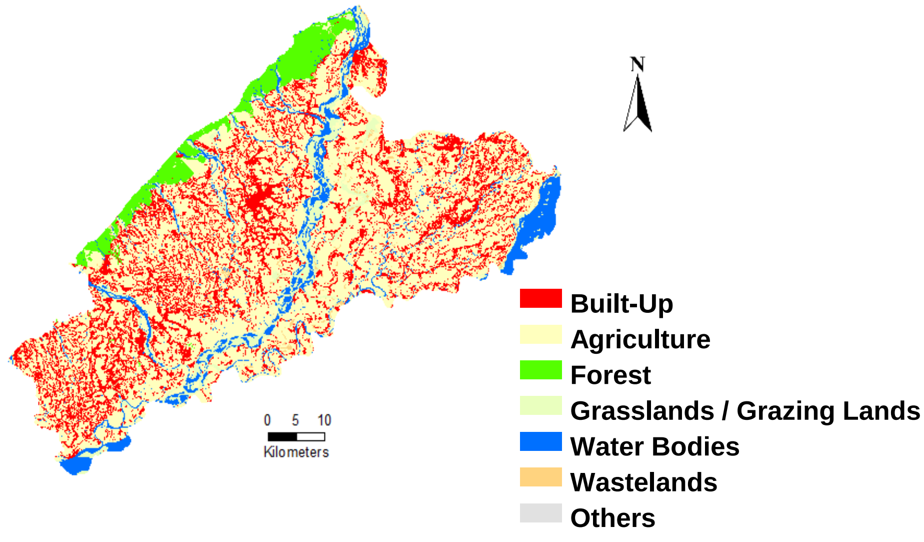
nrsc

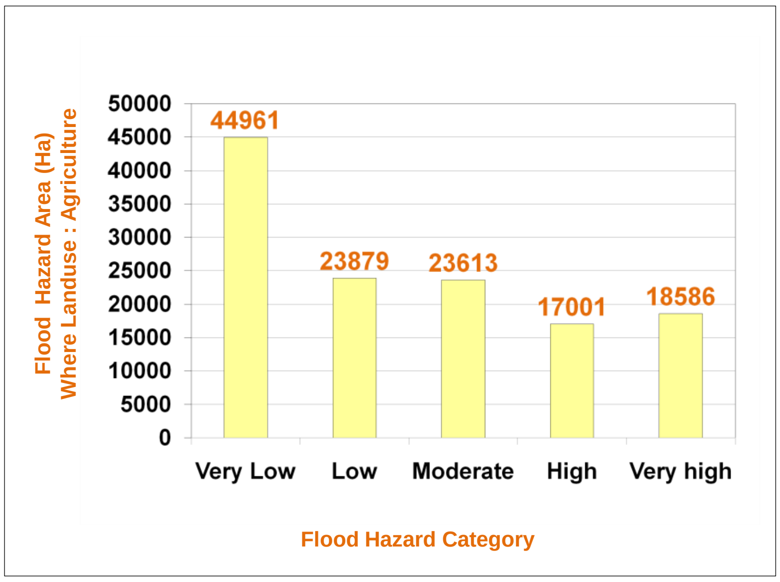


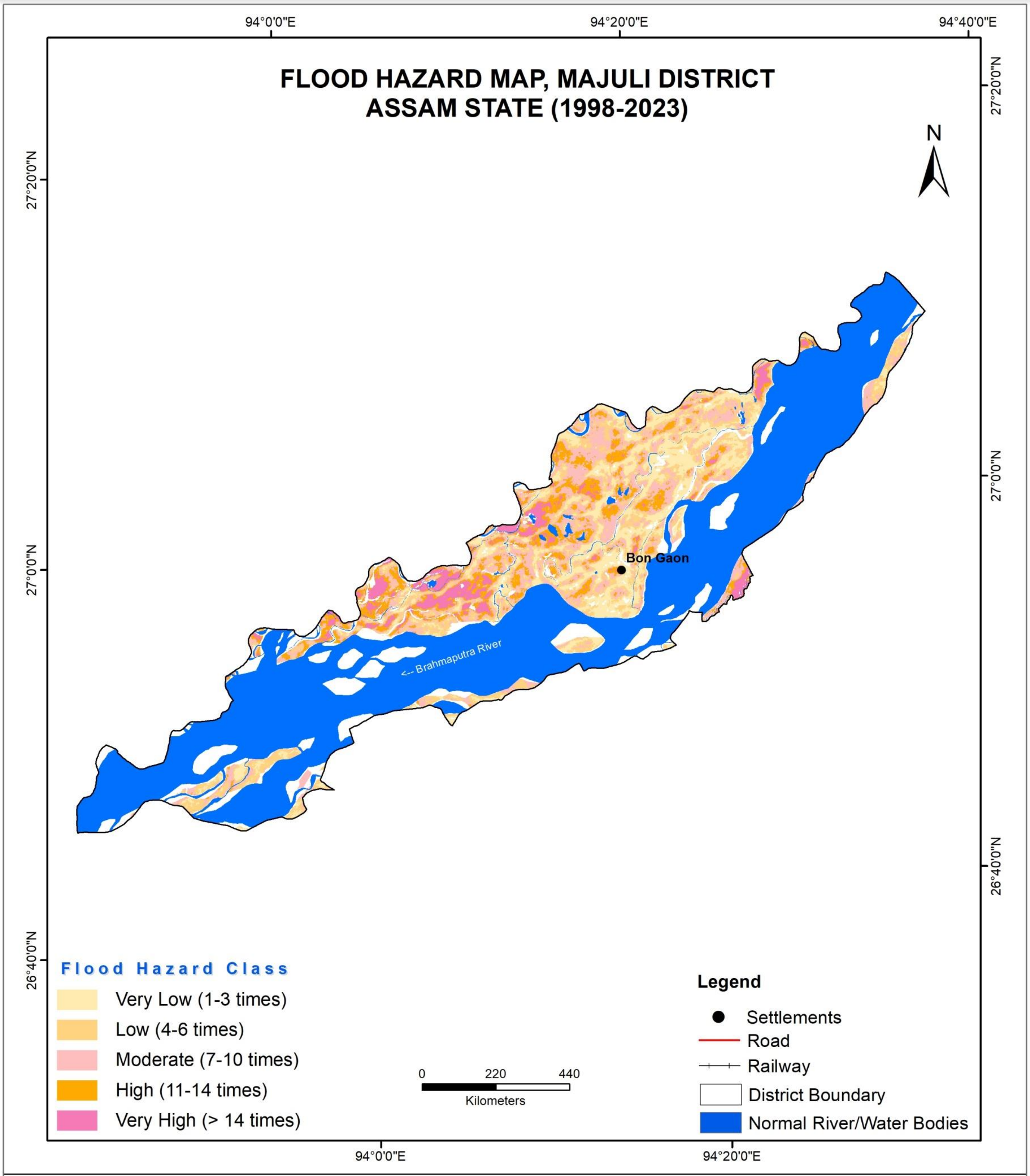
Water Levels at Badatighat Gauge Station during 1998-2023 (May-Oct)


Annual Flood Affected Area in Lakhimpur District during 1998-2023

Land Use Land Cover map of Lakhimpur District


N
0 5 10
Kilometers
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others



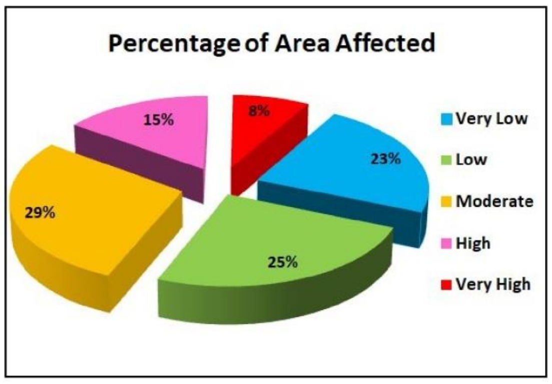


FLOOD HAZARD MAP, MAJULI DISTRICT
ASSAM STATE (1998-2023)

94°0'0"E
94°20'0"E
94°40'0"E
27°20'0"N
27°0'0"N
26°40'0"N
N
Bon Gaon
<-- Brahmaputra River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	10398
2	Low	11287
3	Moderate	13060
4	High	6956
5	Very High	3646



Percentage of Area Affected

Prepared by
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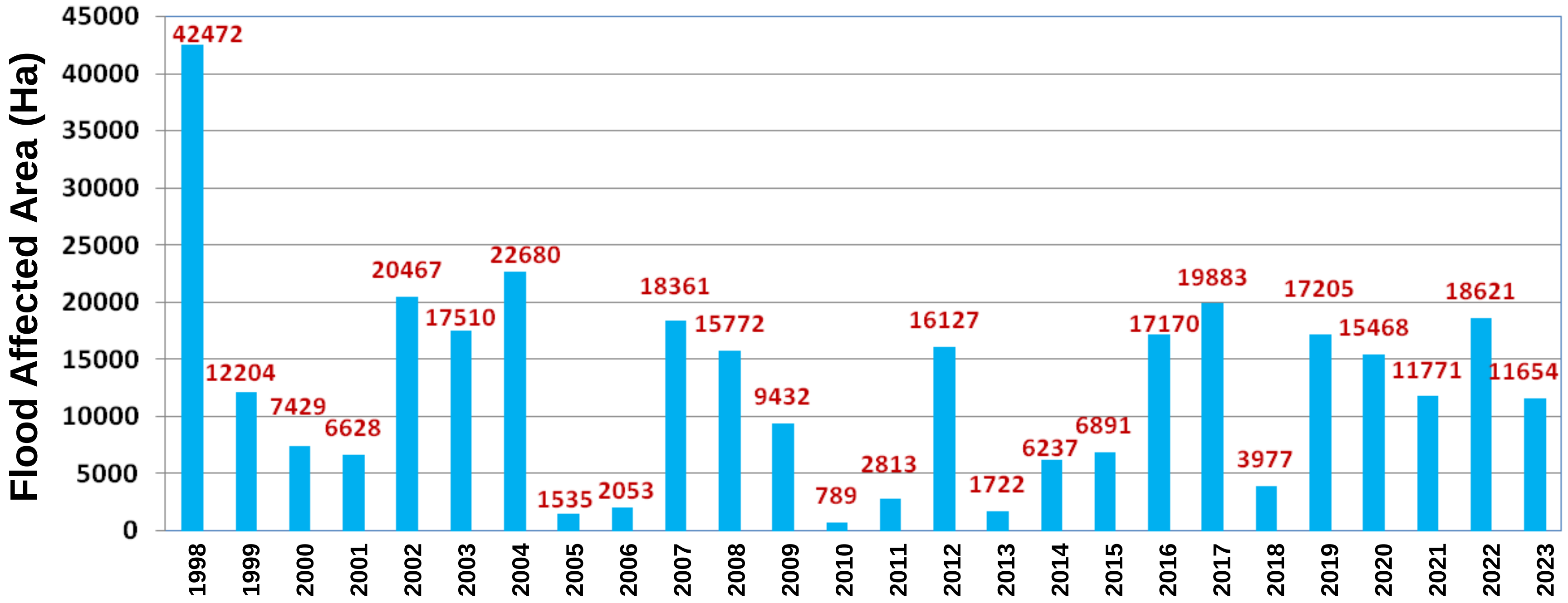
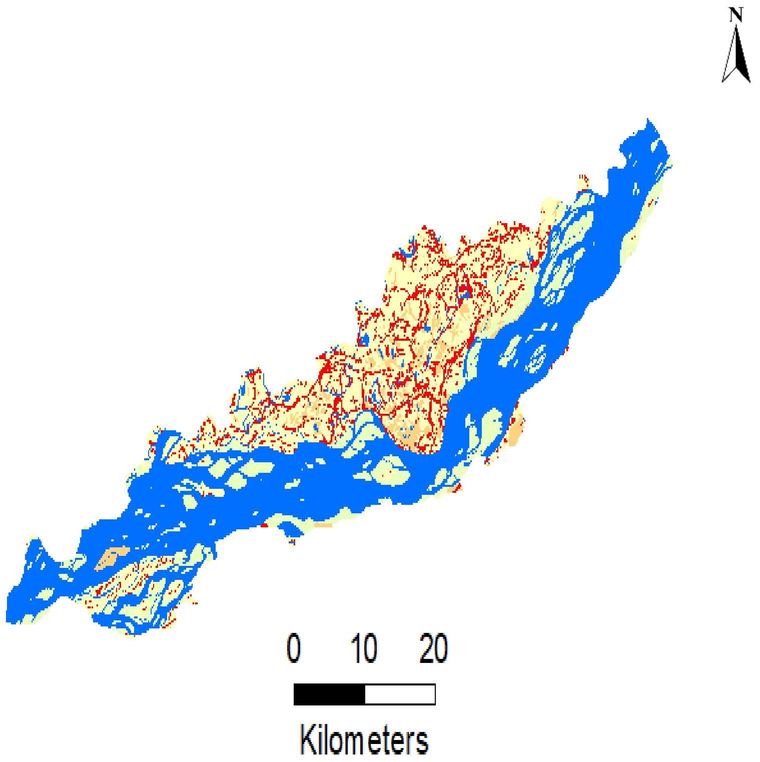
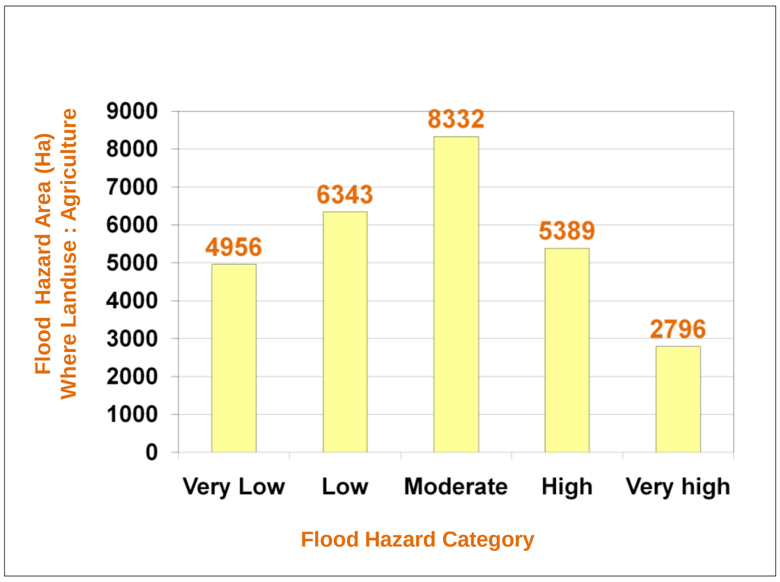
Annual Flood Affected Area in Majuli District during 1998-2023



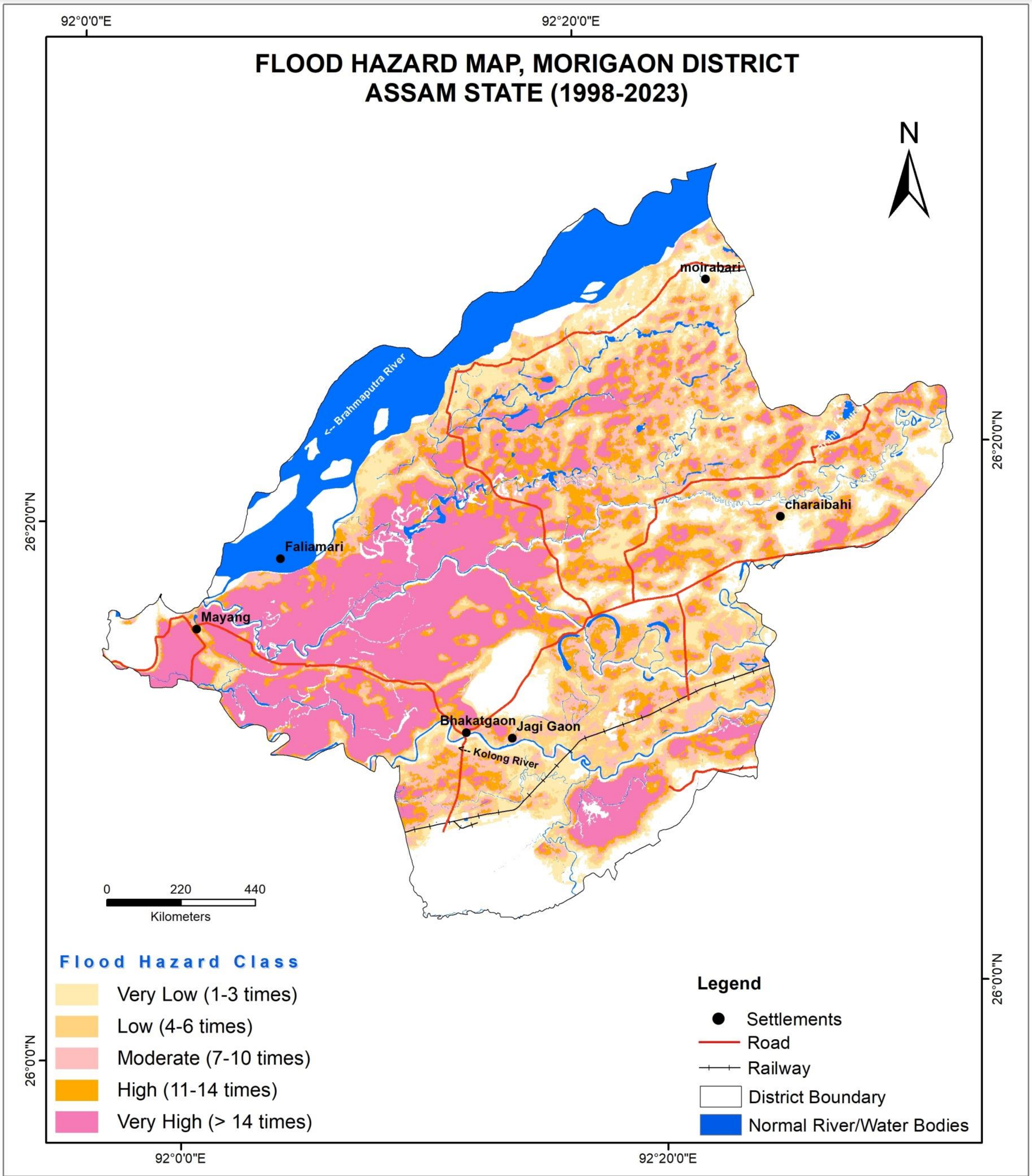
Land Use Land Cover map of Majuli District



🟥 Built-Up
▨ Agriculture
🟩 Forest
▨ Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
▨ Others

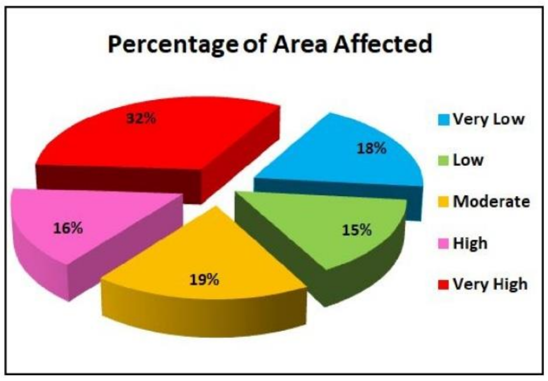


FLOOD HAZARD MAP, MORIGAON DISTRICT
ASSAM STATE (1998-2023)


92°0'0"E
92°20'0"E
26°20'0"N
26°0'0"N
N
moirabari
charaibahi
Faliamari
Mayang
Bhakatgaon
Jagi Gaon
<-- Brahmaputra River
<-- Kolong River
0
220
440
Kilometers
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
Legend
● Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	18803
2	Low	15707
3	Moderate	19111
4	High	15936
5	Very High	33120



Prepared by

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Department of Space, Government of India
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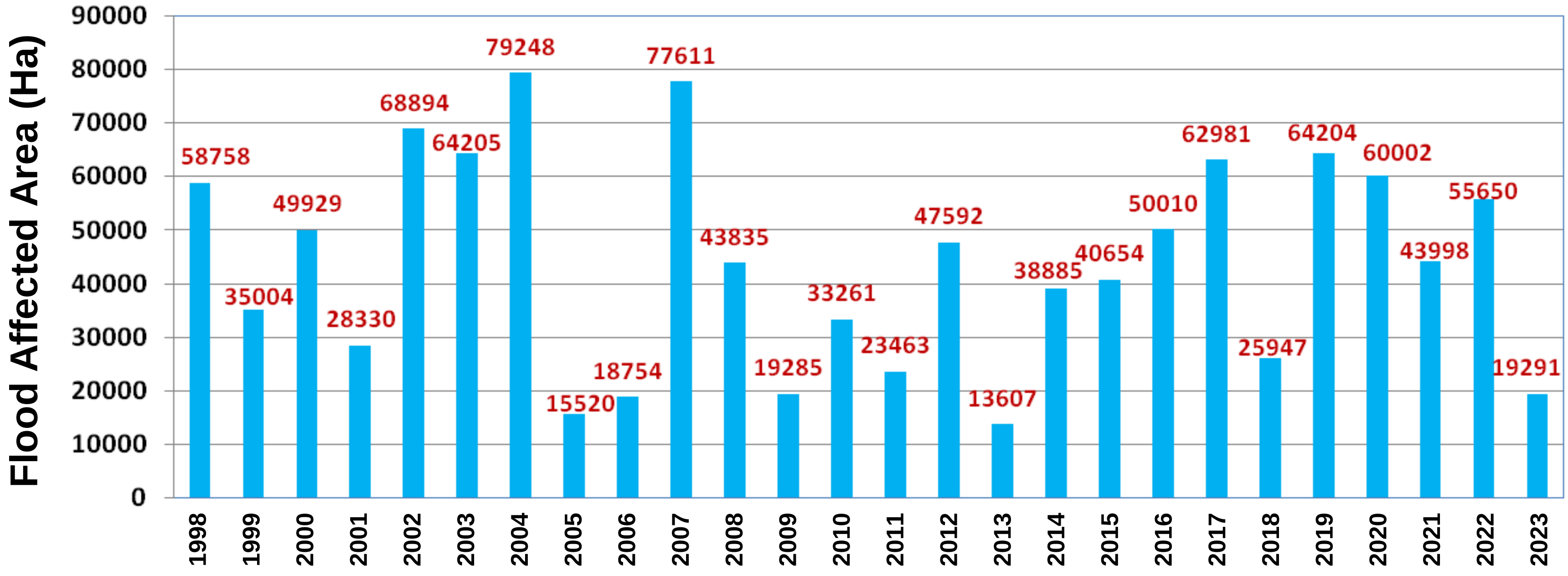
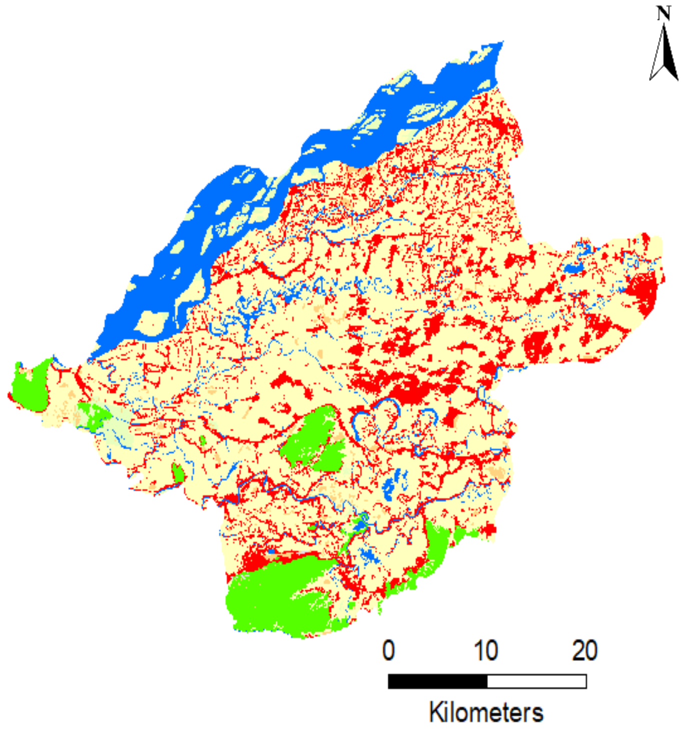
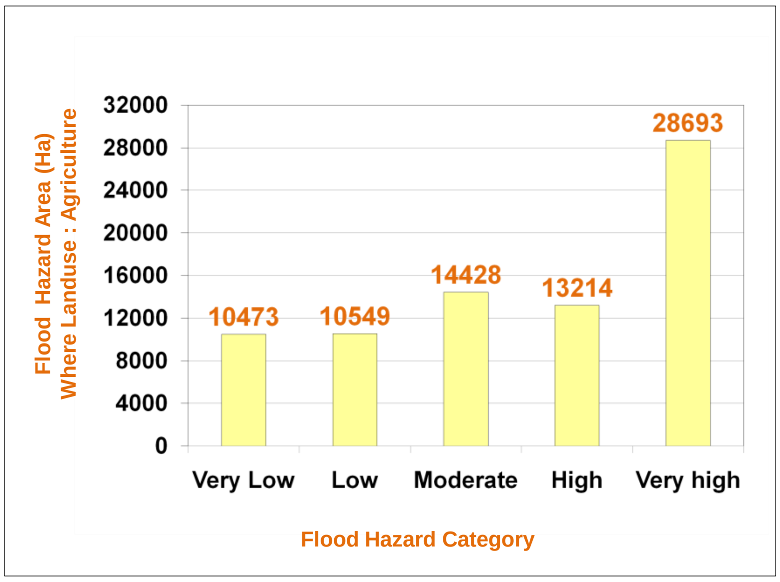
Annual Flood Affected Area in Morigaon District during 1998-2023

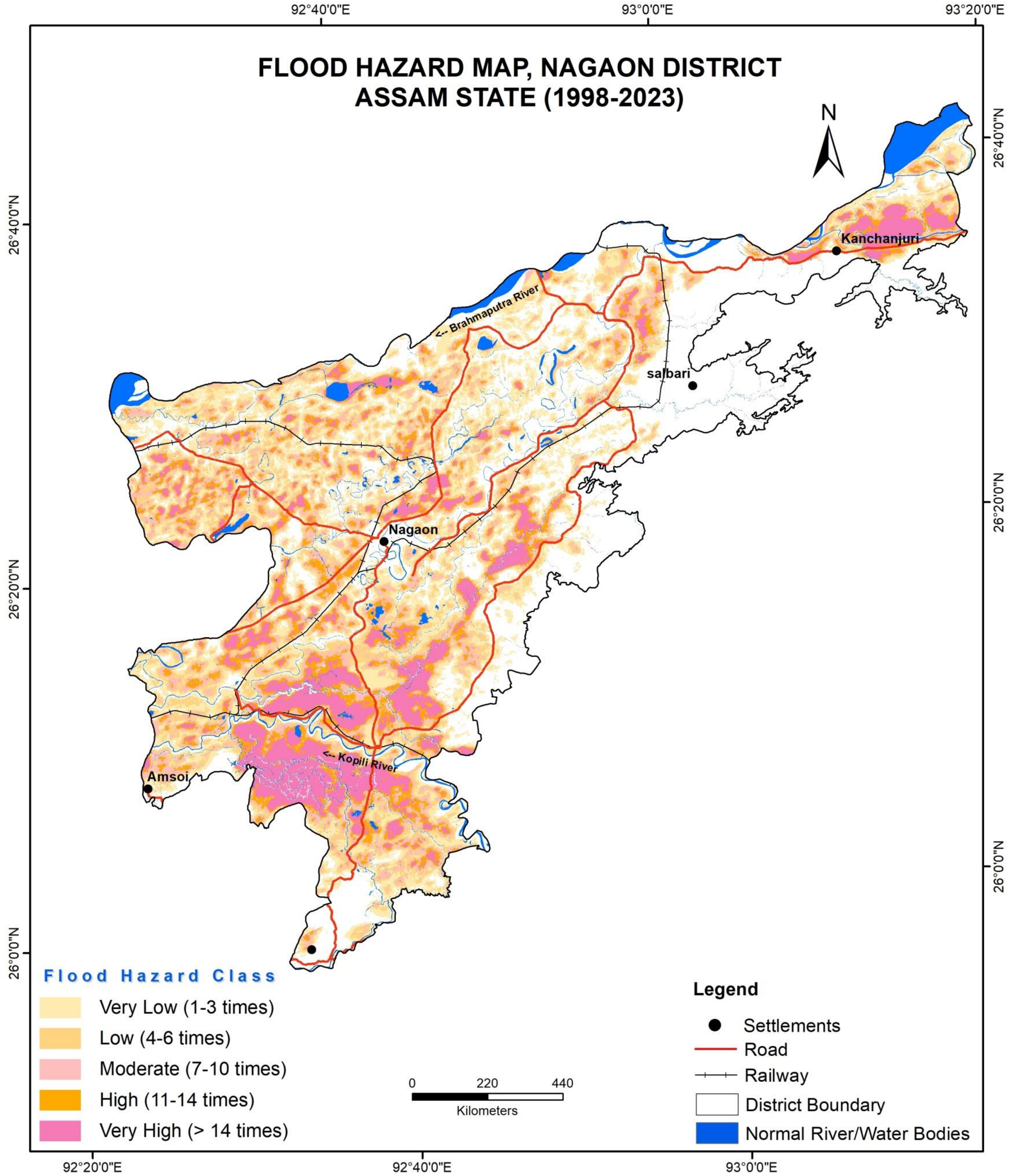


Land Use Land Cover map of Morigaon District

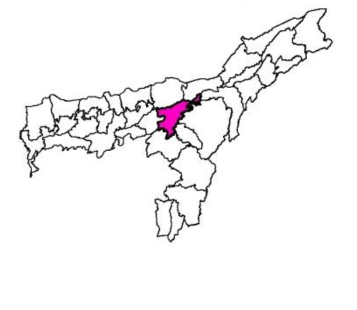

N
0
10
20
Kilometers
🟥 Built-Up
Agriculture
🟩 Forest
Grasslands / Grazing Lands
🟦 Water Bodies
Wastelands
Others



FLOOD HAZARD MAP, NAGAON DISTRICT
ASSAM STATE (1998-2023)

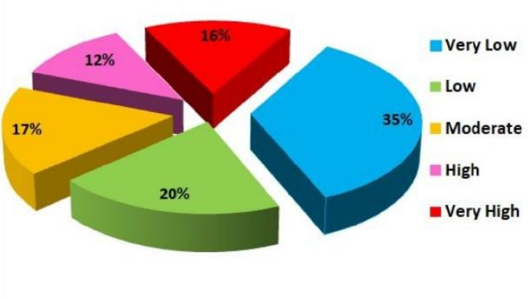

92°40'0"E
93°0'0"E
93°20'0"E
92°20'0"E
92°40'0"E
93°0'0"E
26°40'0"N
26°20'0"N
26°0'0"N
26°40'0"N
26°20'0"N
26°0'0"N
N
Kanchanjuri
<-- Brahmaputra River
salbari
Nagaon
<-- Kopili River
Amsoi
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map



S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	57893
2	Low	32615
3	Moderate	28079
4	High	19612
5	Very High	25529

Percentage of Area Affected



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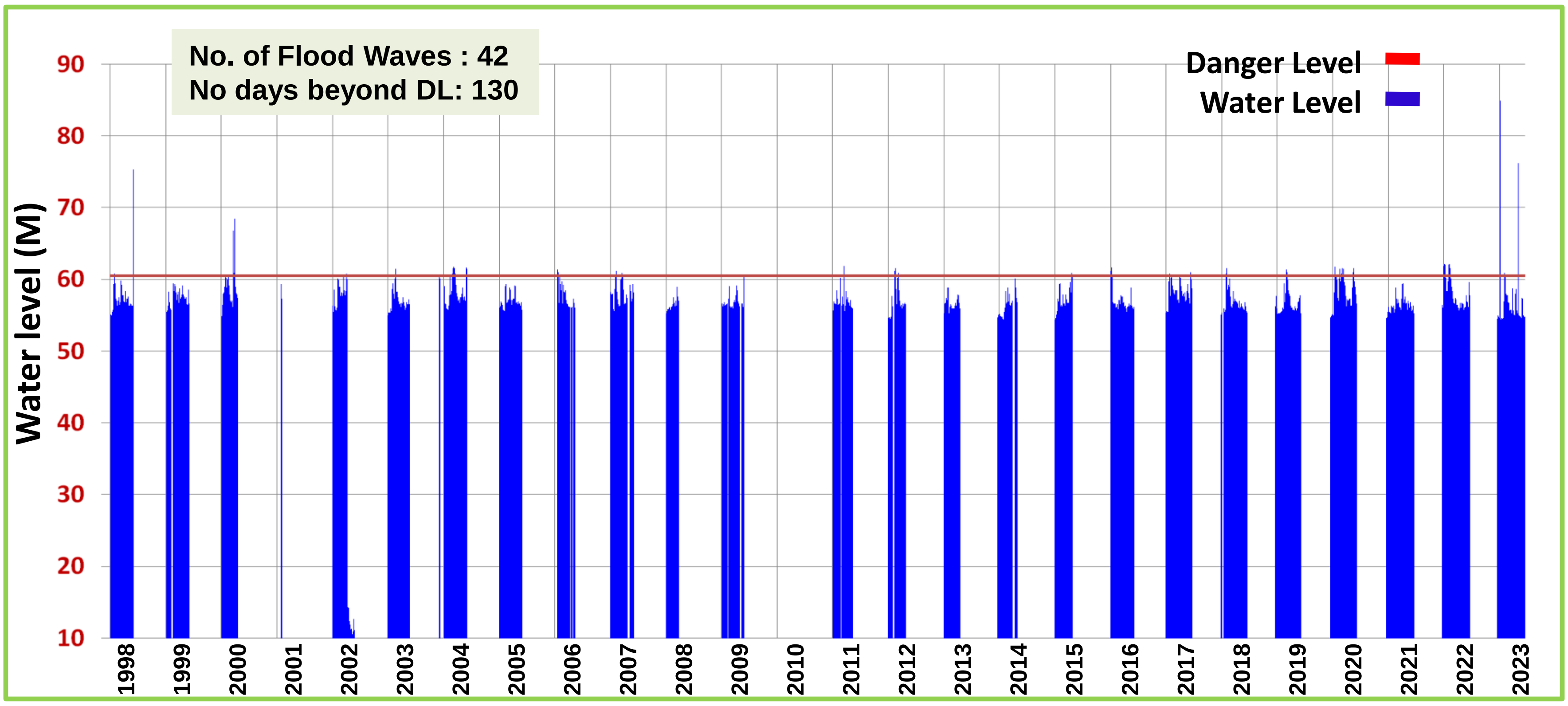
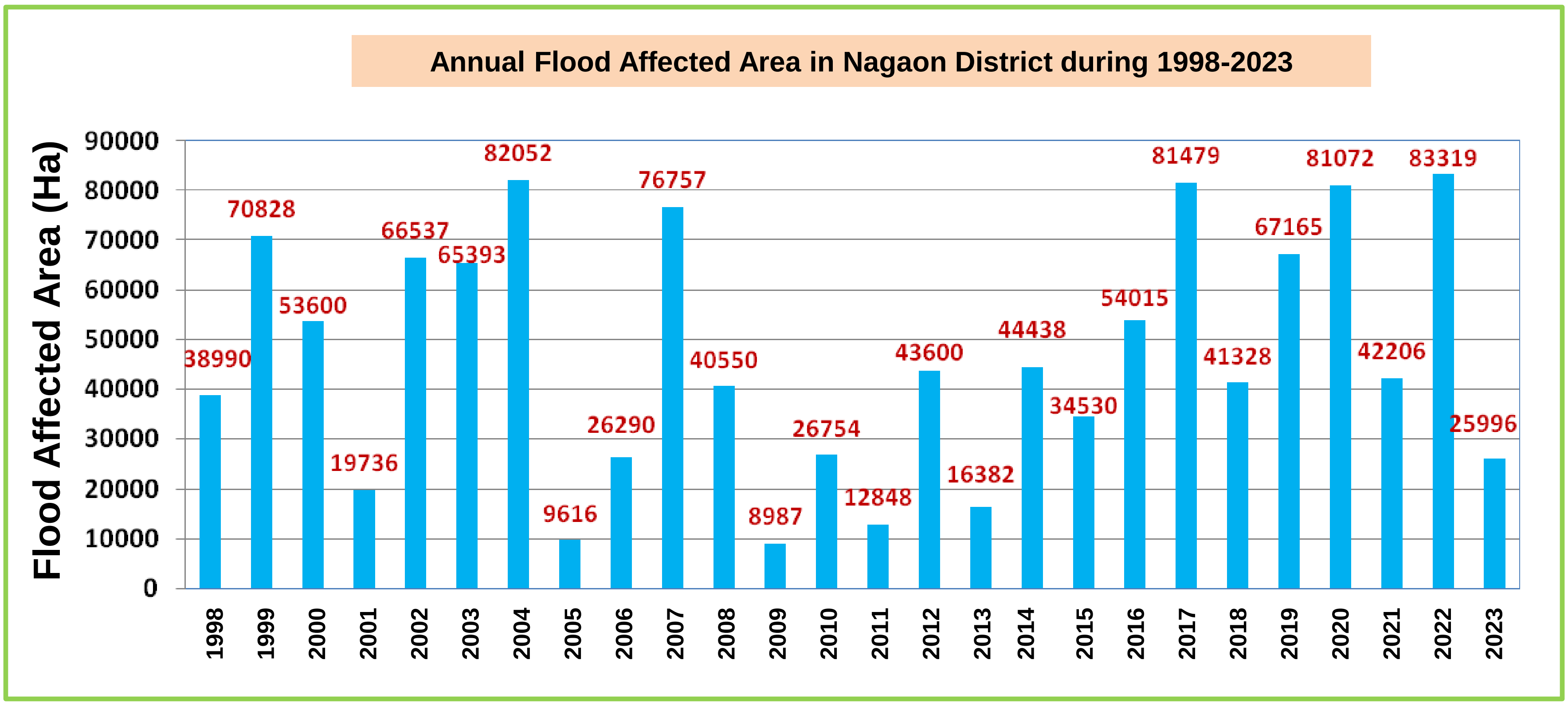
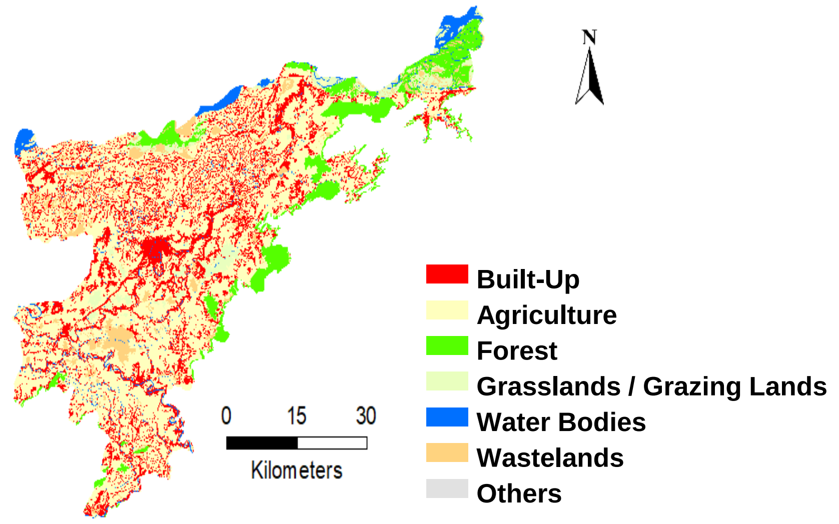
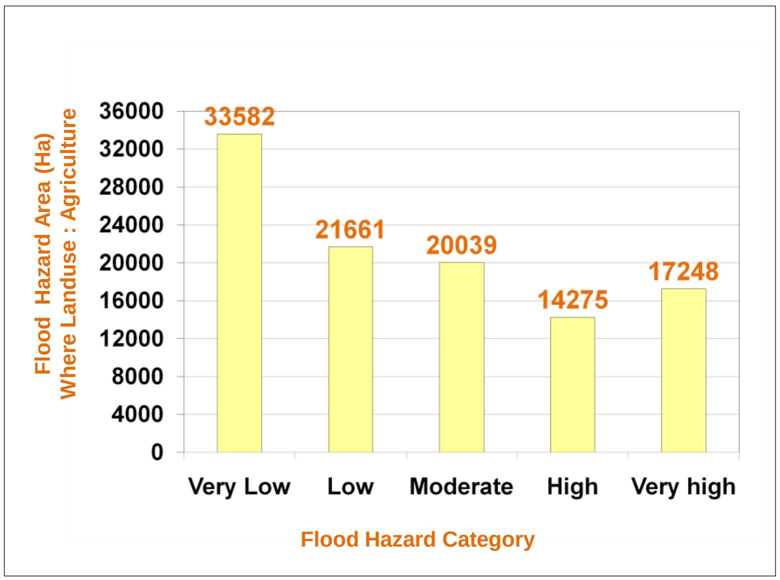

No. of Flood Waves : 42
No days beyond DL: 130

Water Levels a Kampur Gauge Station during 1998-2023 (May-Oct)

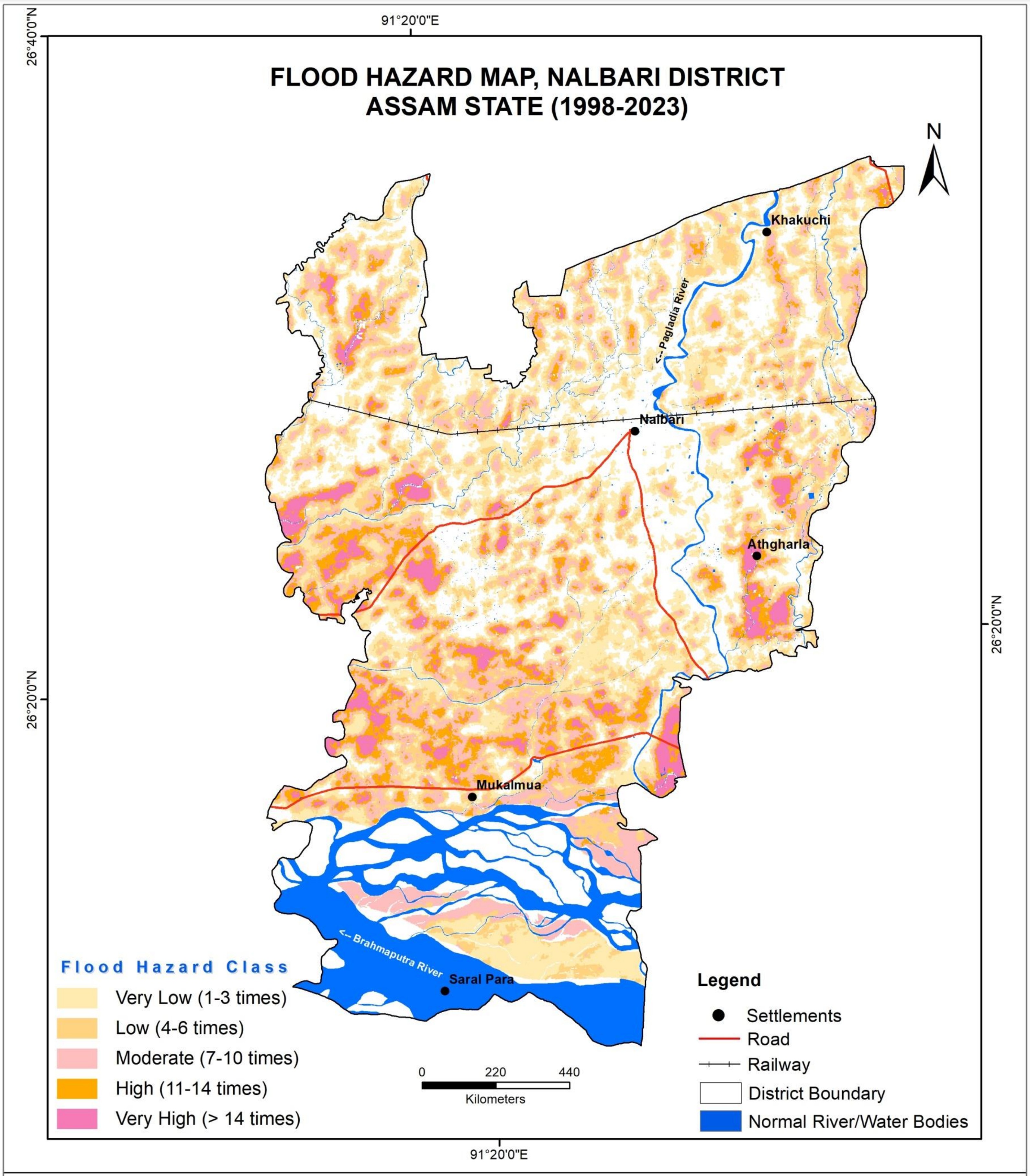

Annual Flood Affected Area in Nagaon District during 1998-2023

Land Use Land Cover map of Nagaon District


N
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others
0
15
30
Kilometers



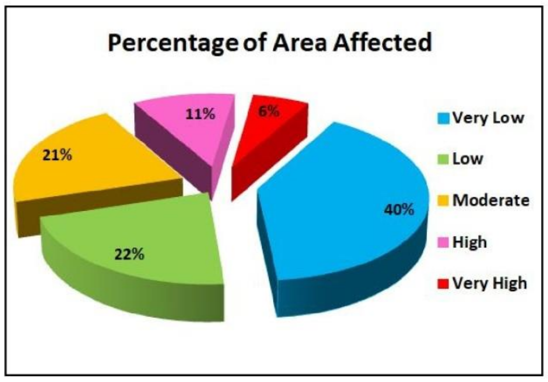
FLOOD HAZARD MAP, NALBARI DISTRICT
ASSAM STATE (1998-2023)


26°40'0"N
91°20'0"E
N
Khakuchi
<-- Pagladia River
Nalbari
Athgharla
26°20'0"N
26°20'0"N
Mukalmua
<-- Brahmaputra River
Saral Para
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies
91°20'0"E

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	26560
2	Low	14372
3	Moderate	14039
4	High	7096
5	Very High	3953

Percentage of Area Affected



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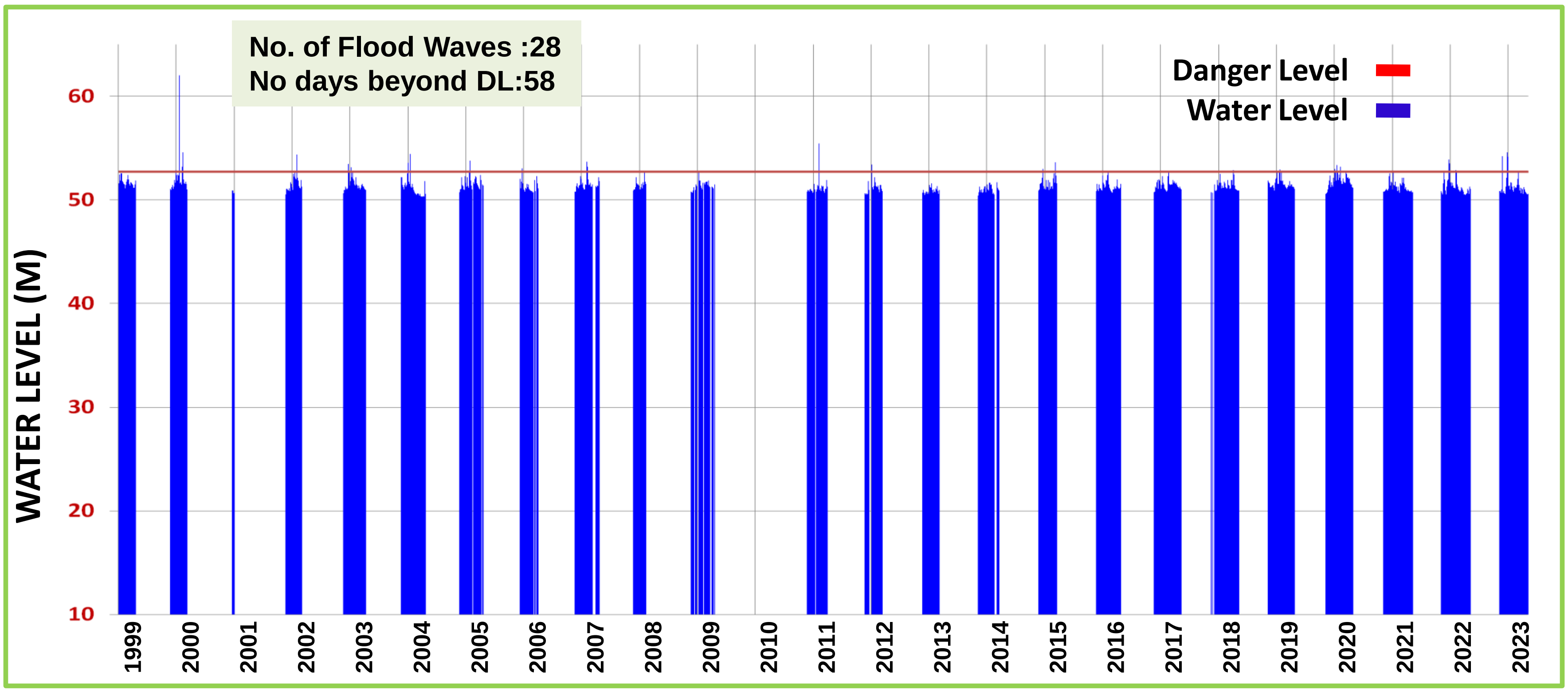
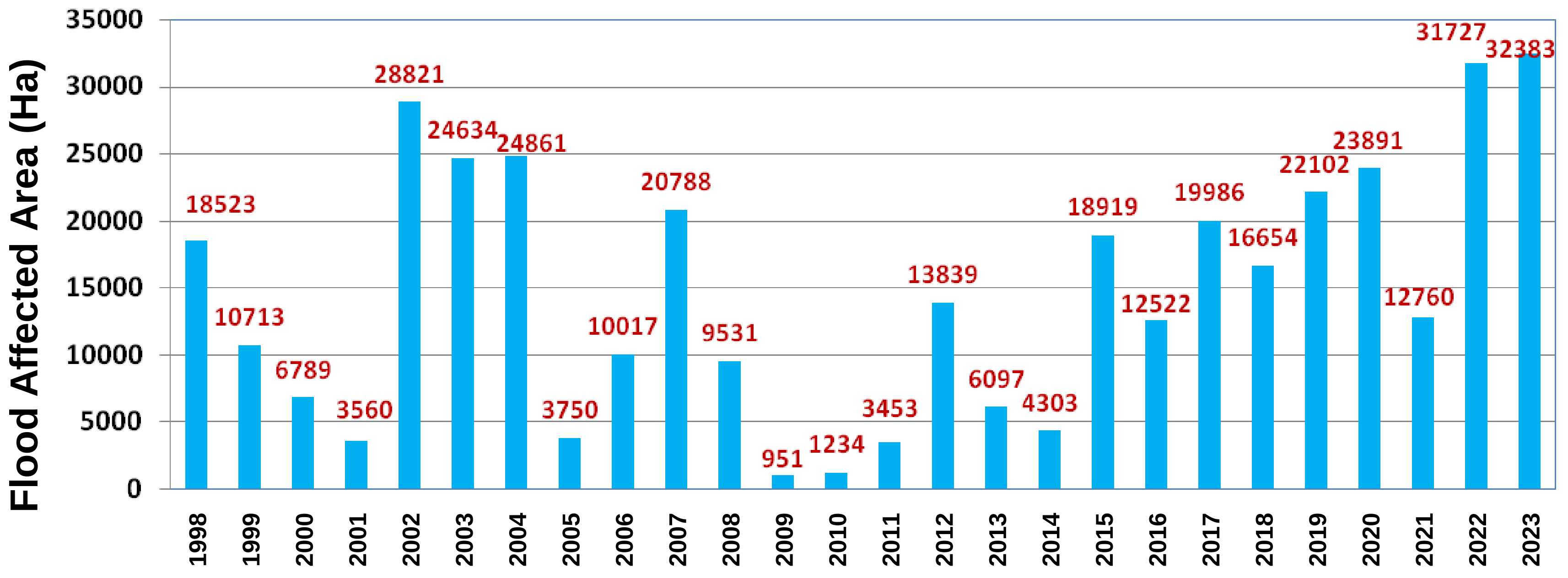
Department of Space, Government of India
Balanagar, Hyderabad - 500 037

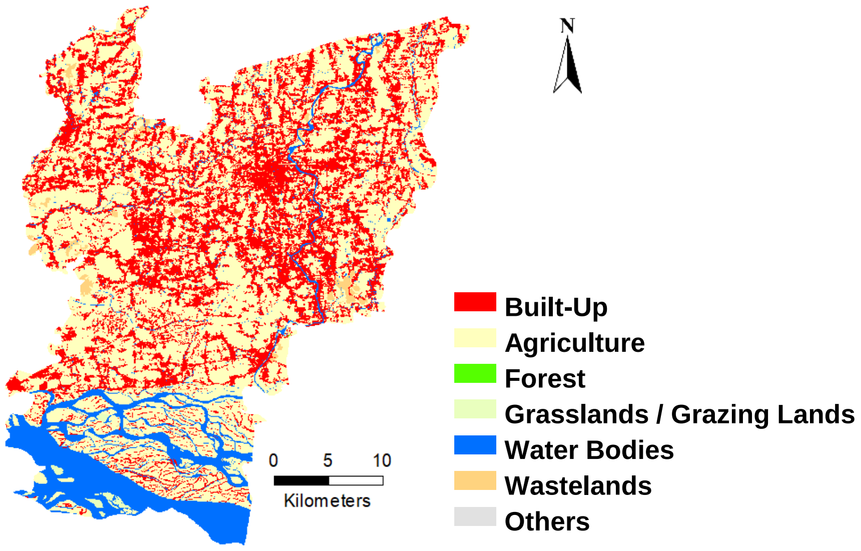


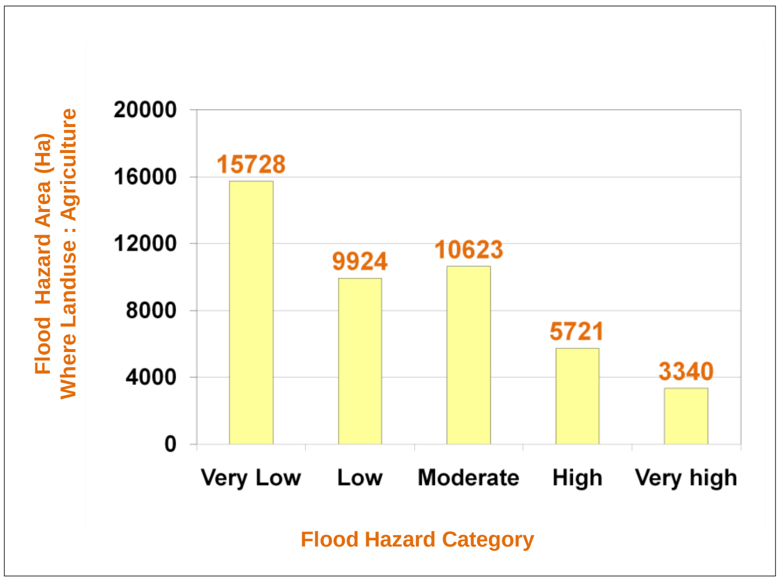
Water Levels at Ntrdxing gauge Station during 1998-2023 (May-Oct)

Annual Flood Affected Area in Nalbari District during 1998-2023

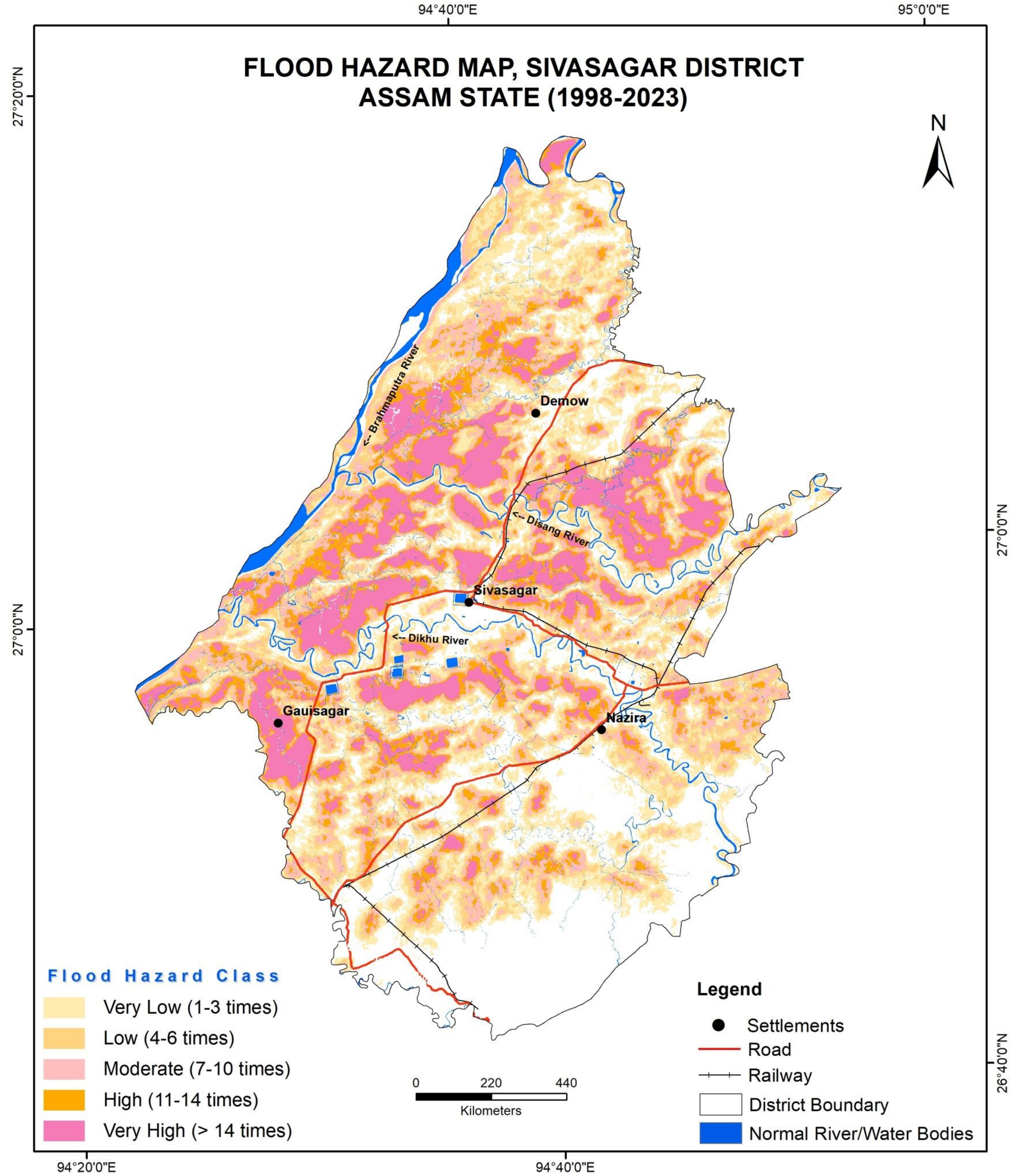


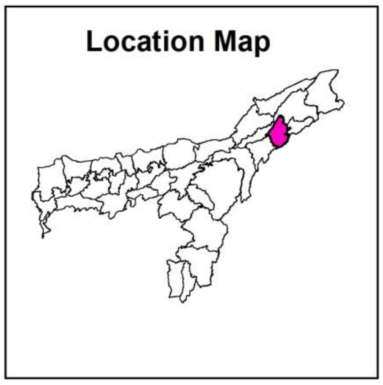
Land Use Land Cover map of Nalbari District


N
0
5
10
Kilometers
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others

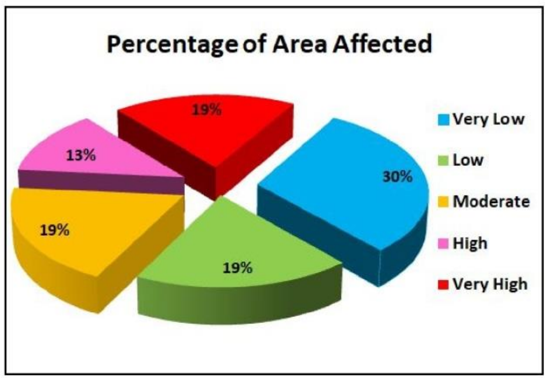


FLOOD HAZARD MAP, SIVASAGAR DISTRICT
ASSAM STATE (1998-2023)


94°40'0"E
95°0'0"E
27°20'0"N
27°0'0"N
26°40'0"N
94°20'0"E
N
<-- Brahmaputra River
<-- Disang River
<-- Dikhu River
Demow
Sivasagar
Gaurisagar
Nazira
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies


Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	32362
2	Low	20226
3	Moderate	20422
4	High	13620
5	Very High	20505



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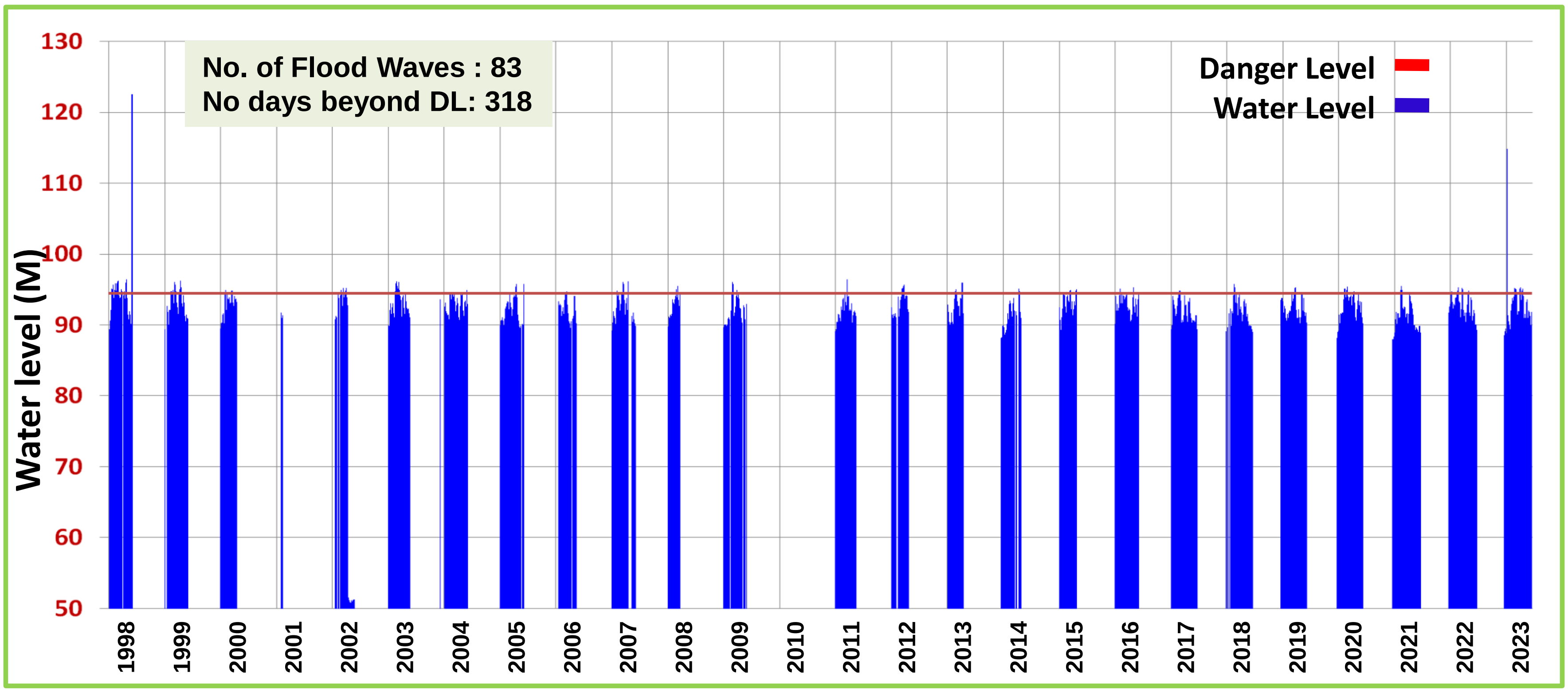
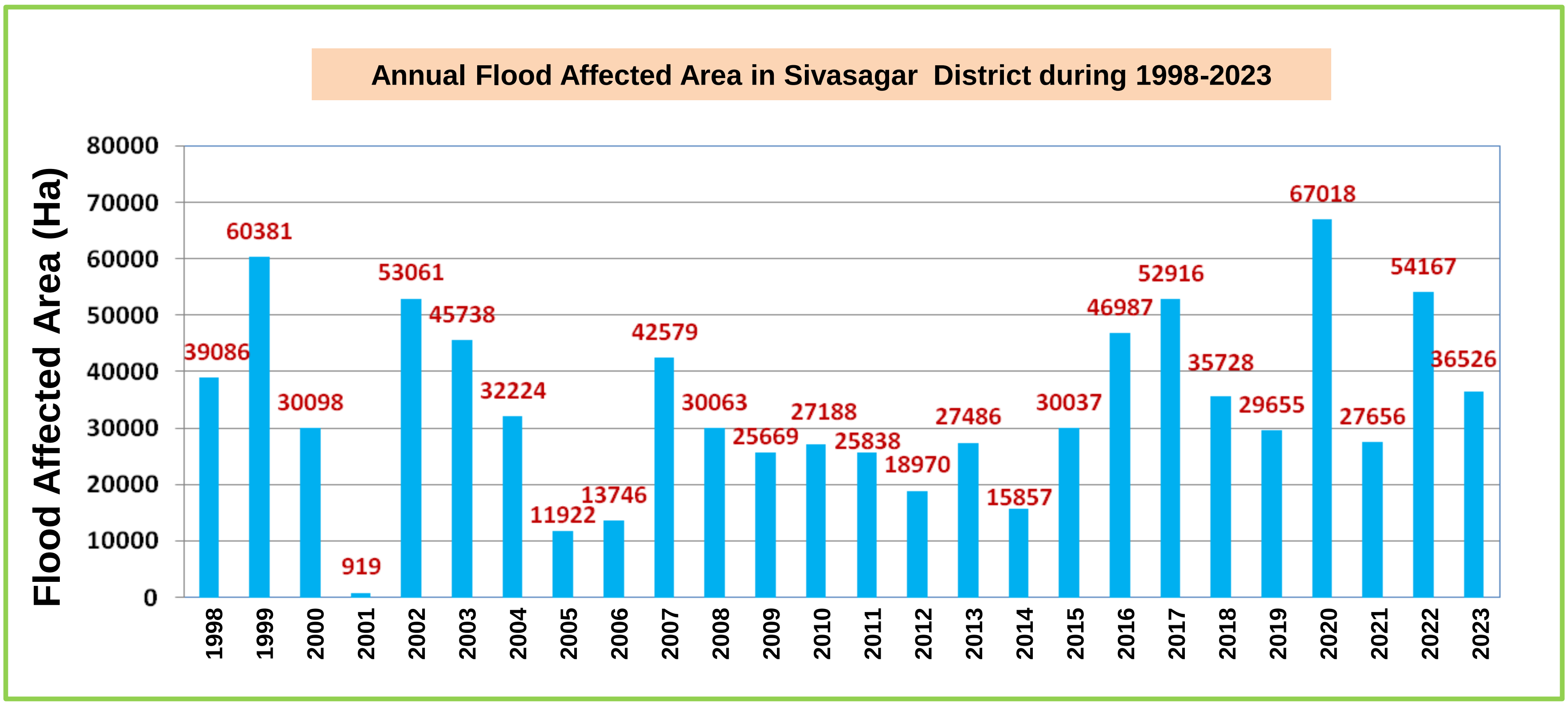
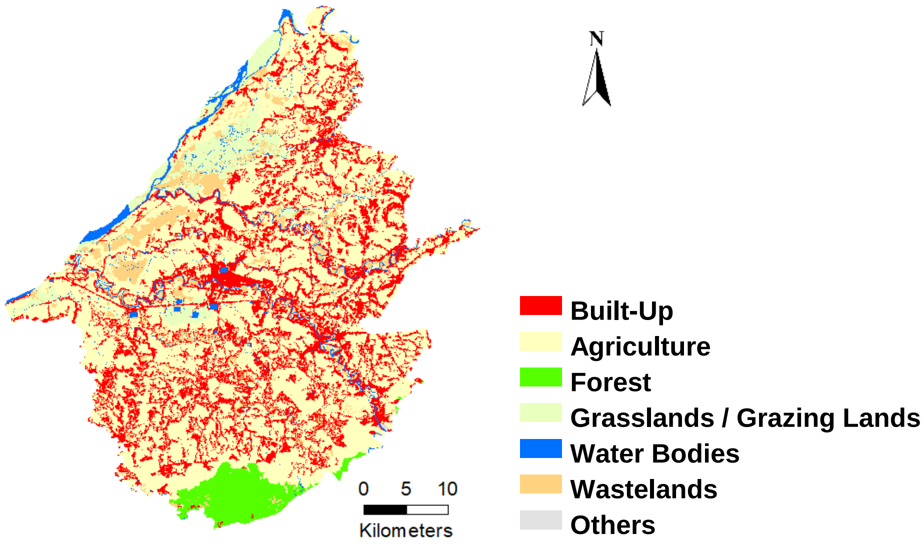
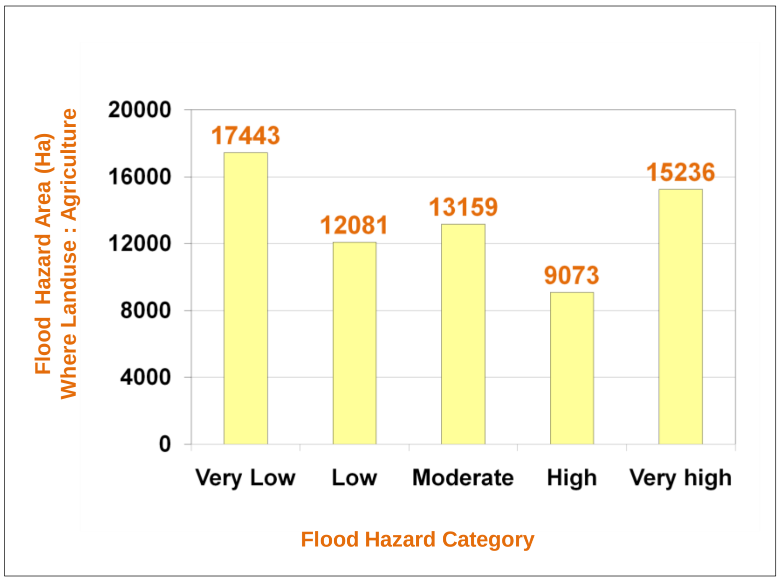


Water Levels at Nanglamorghat ghat Gauge Station during 1998-2023 (May-Oct)

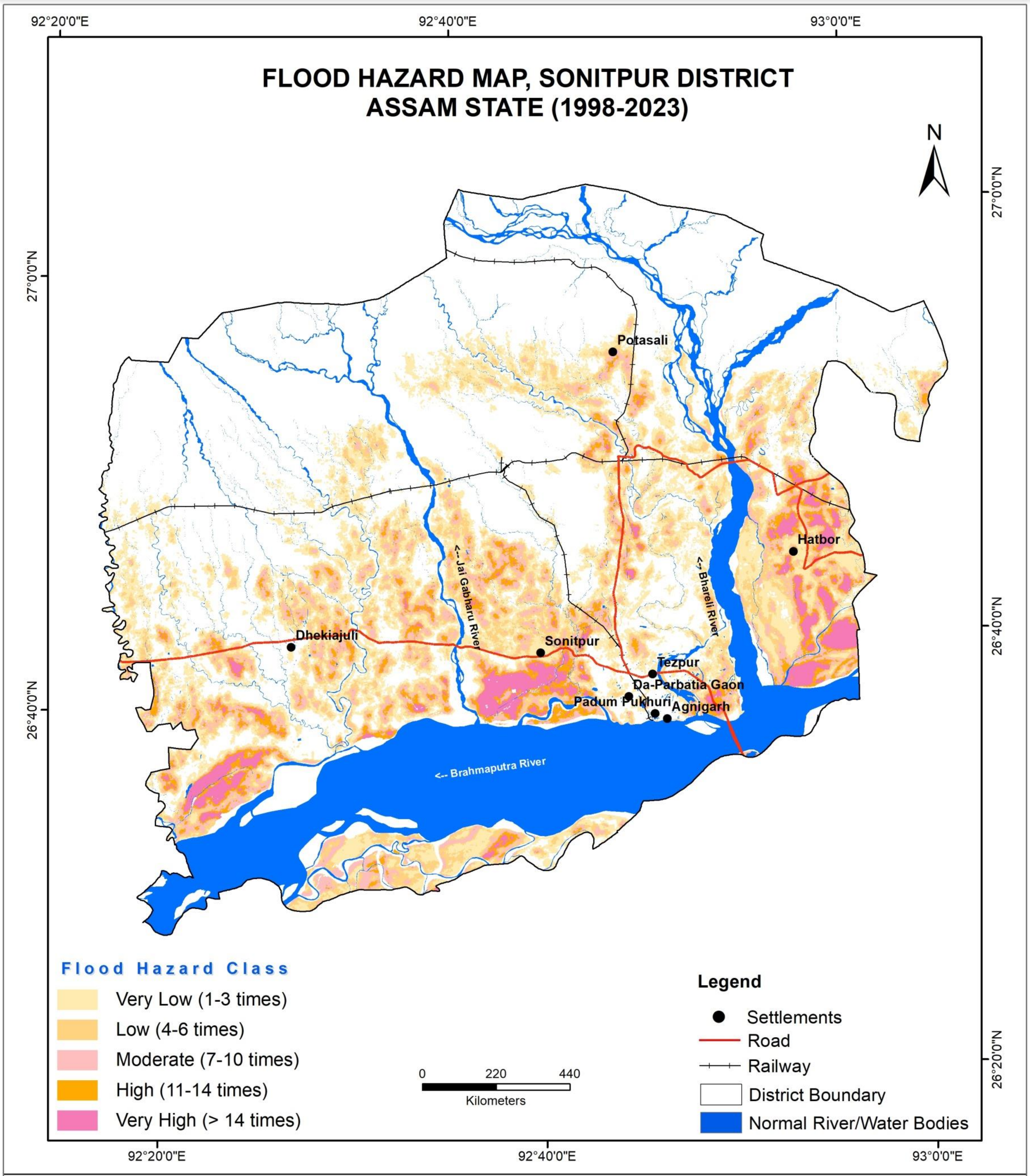

Annual Flood Affected Area in Sivasagar District during 1998-2023

Land Use Land Cover map of Sivasagar District


N
0 5 10
Kilometers
🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others

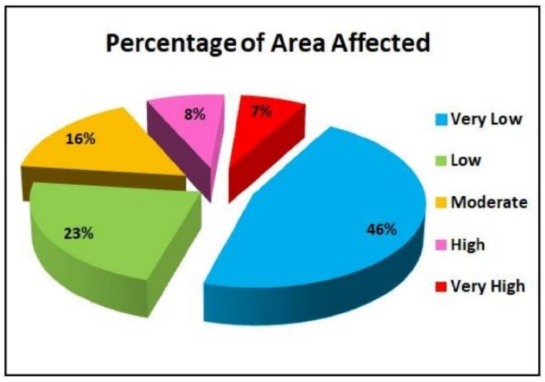


FLOOD HAZARD MAP, SONITPUR DISTRICT ASSAM STATE (1998-2023)


92°20'0"E
92°40'0"E
93°0'0"E
27°0'0"N
26°40'0"N
26°20'0"N
N
Potasali
Hatbor
Dhekiajuli
Sonitpur
Tezpur
Da-Parbatia Gaon
Padum Pukhuri
Agnigarh
<-- Jai Gabharu River
<-- Bhareli River
<-- Brahmaputra River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	48671
2	Low	23505
3	Moderate	17136
4	High	8647
5	Very High	7302



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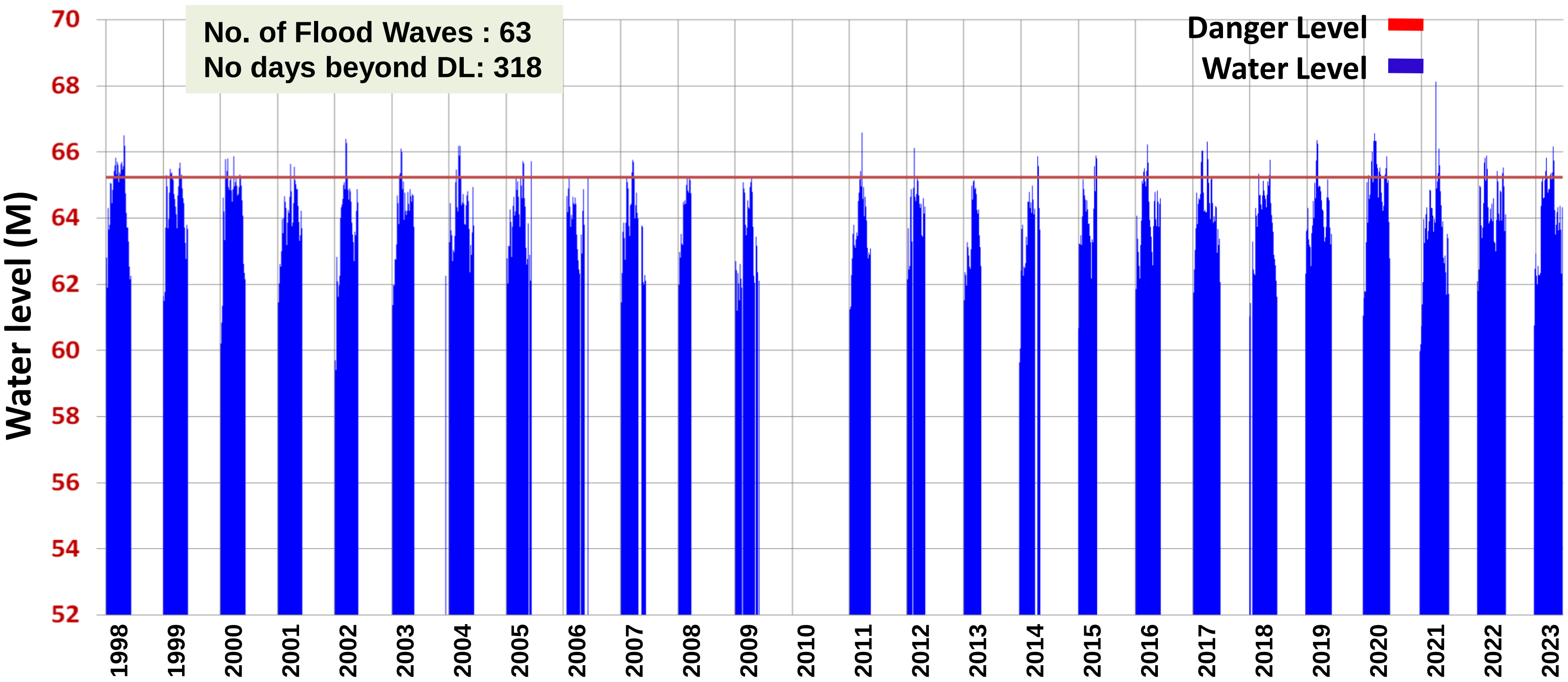
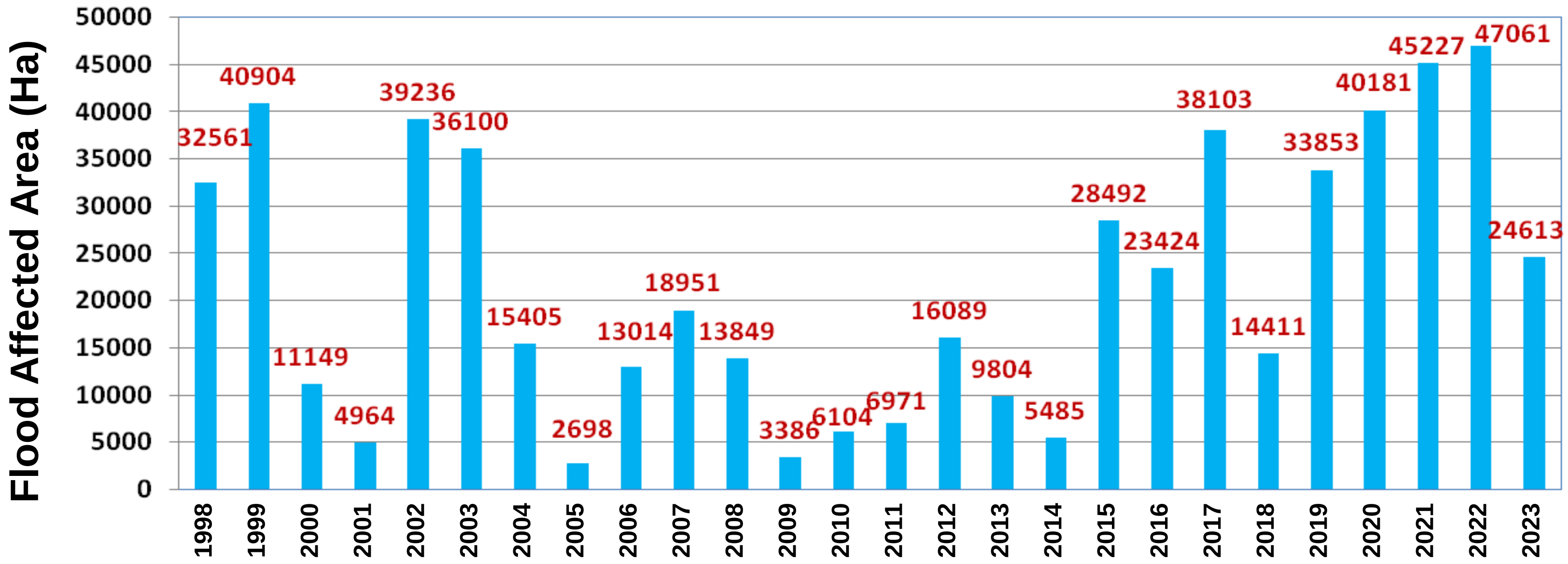
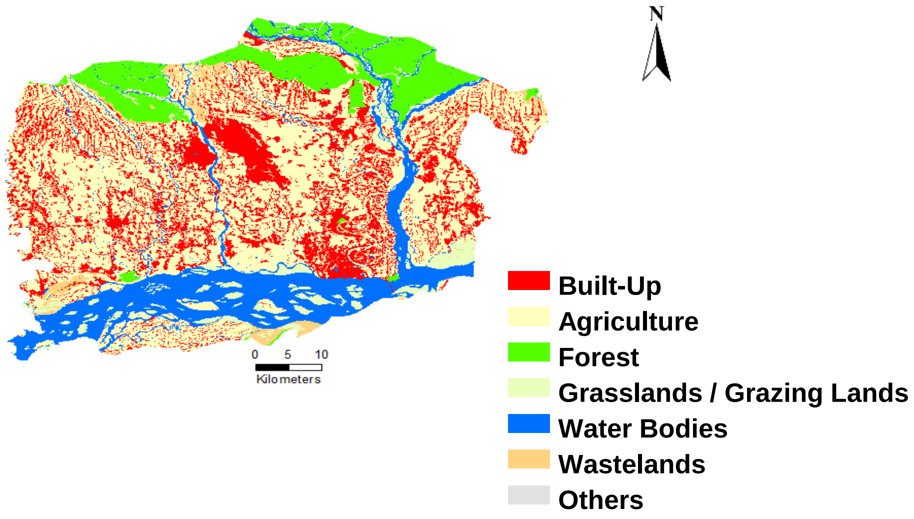


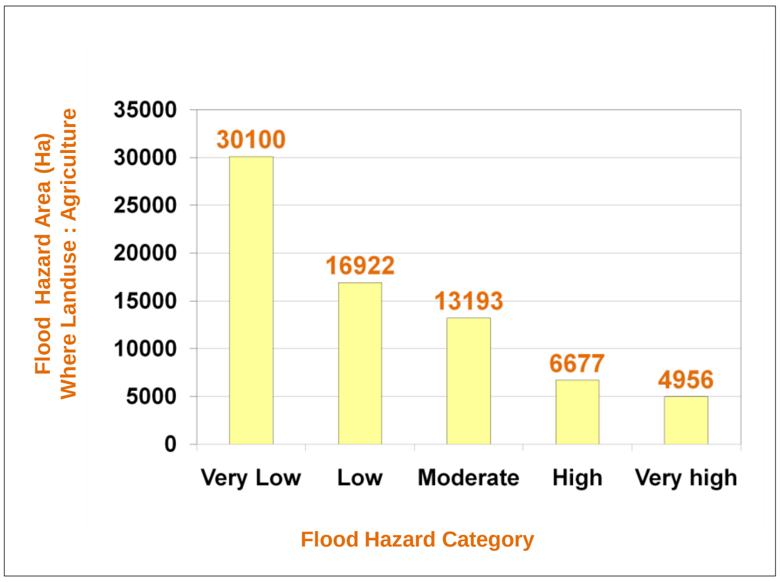
Water Levels at Tezpur Gauge Station during 1998-2023 (May-Oct)

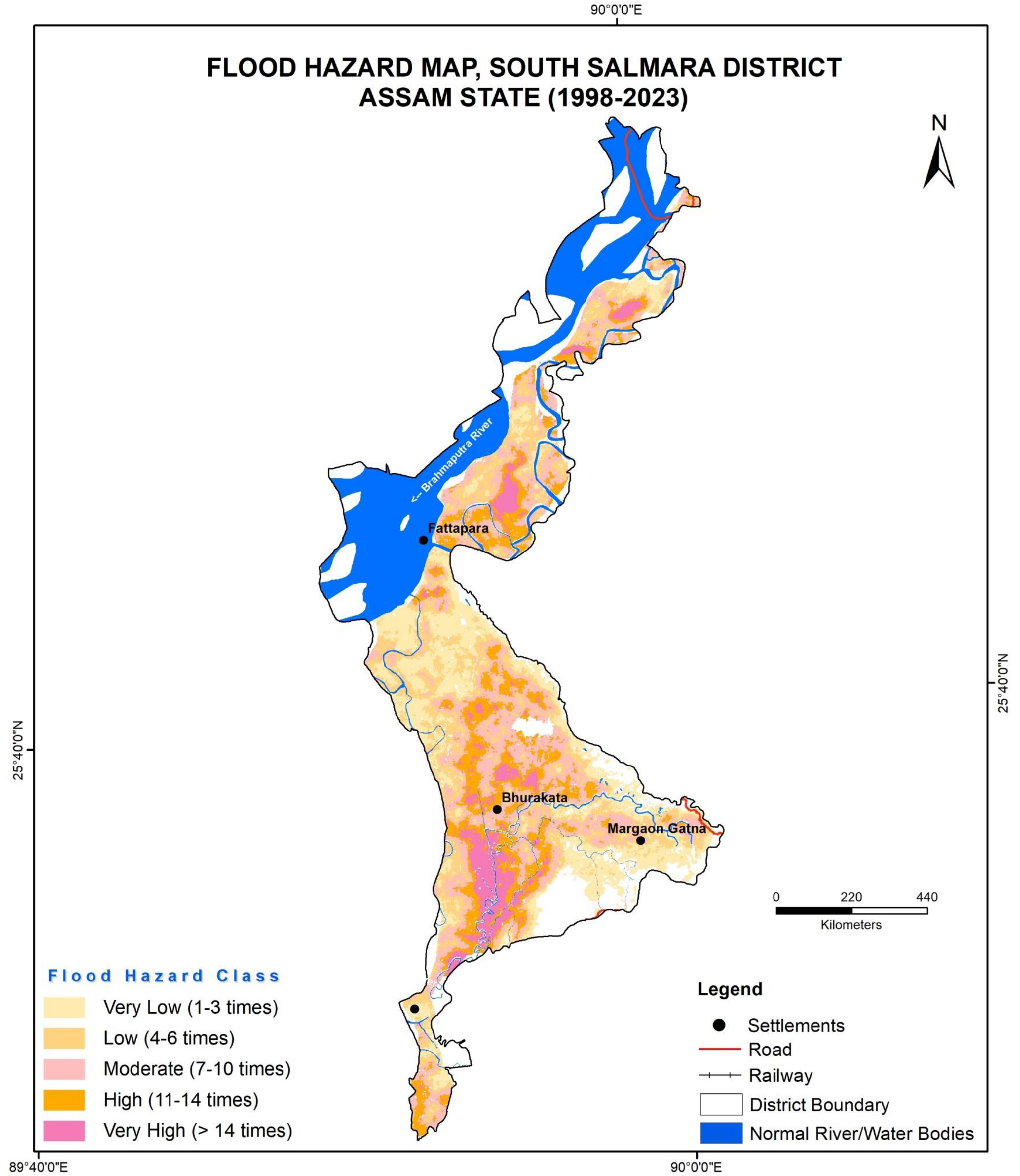
Annual Flood Affected Area in Sonitpur District during 1998-2023



Land Use Land Cover map of Sonitpur District


N
0 5 10
Kilometers
🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others



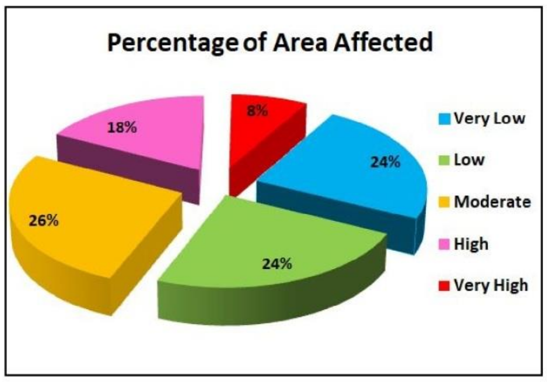


FLOOD HAZARD MAP, SOUTH SALMARA DISTRICT ASSAM STATE (1998-2023)

90°0'0"E
N
<-- Brahmaputra River
Fattapara
Bhurakata
Margaon Gatna
25°40'0"N
25°40'0"N
0
220
440
Kilometers
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies
89°40'0"E
90°0'0"E

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	5057
2	Low	4988
3	Moderate	5616
4	High	3732
5	Very High	1691



Percentage of Area Affected

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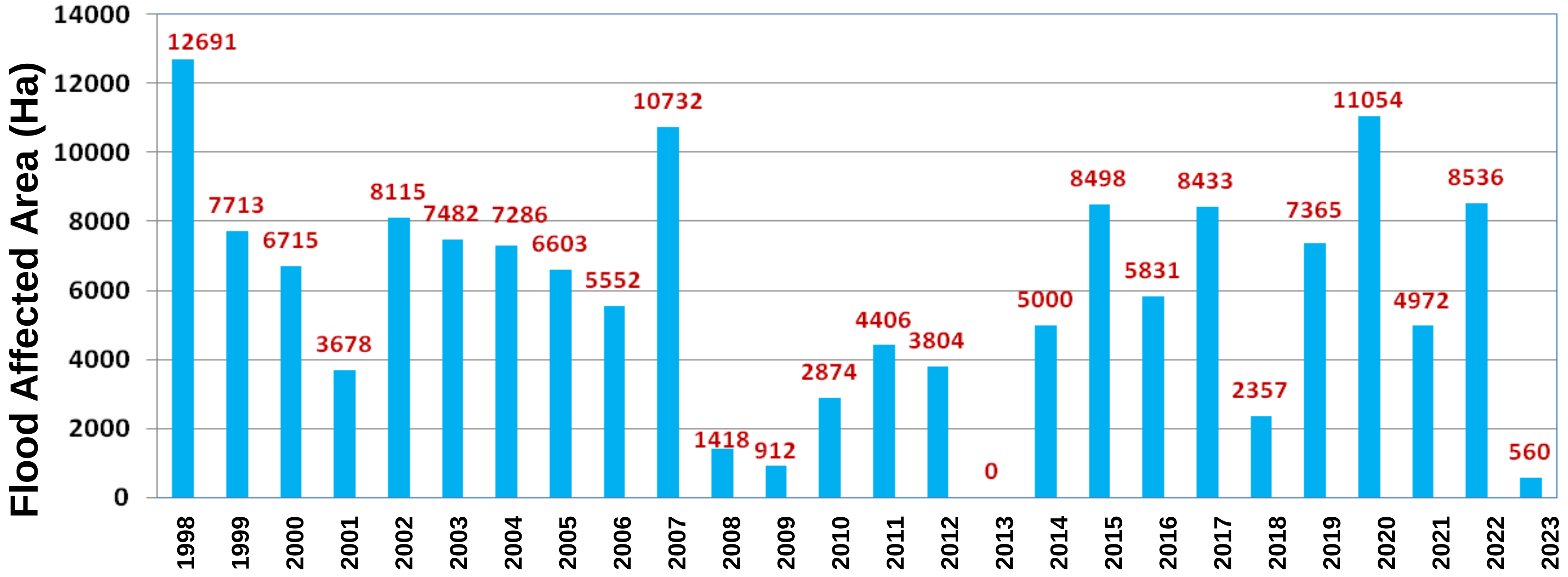
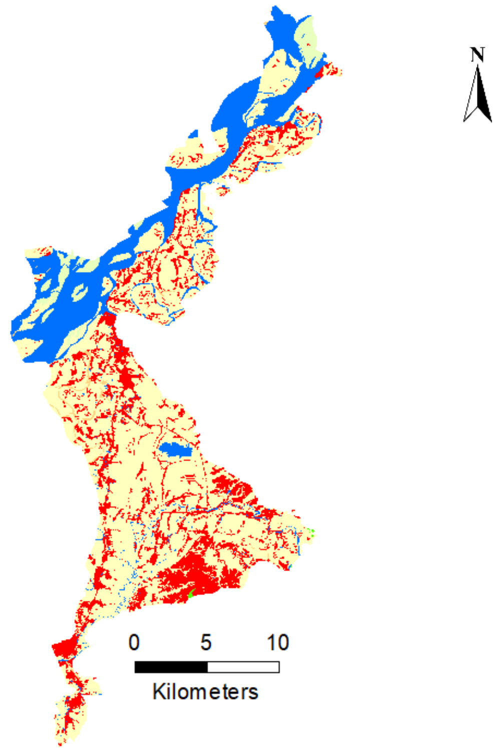
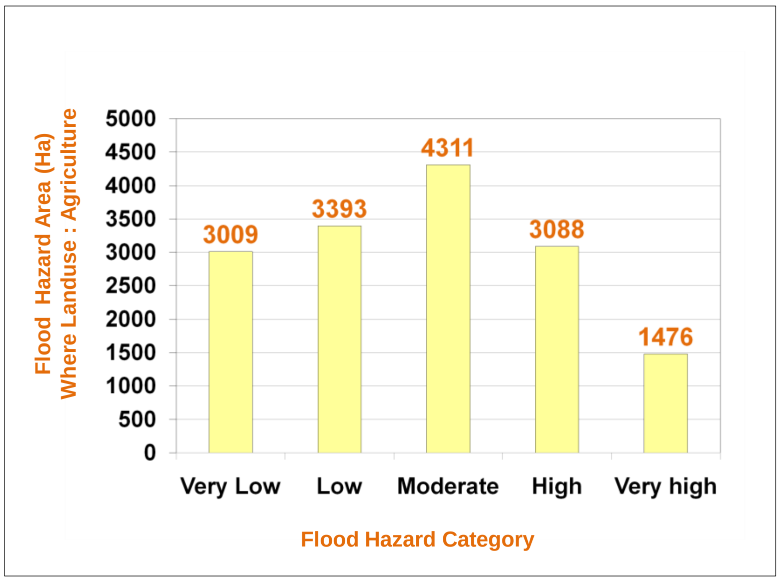
Annual Flood Affected Area in Southsalmara District during 1998-2023

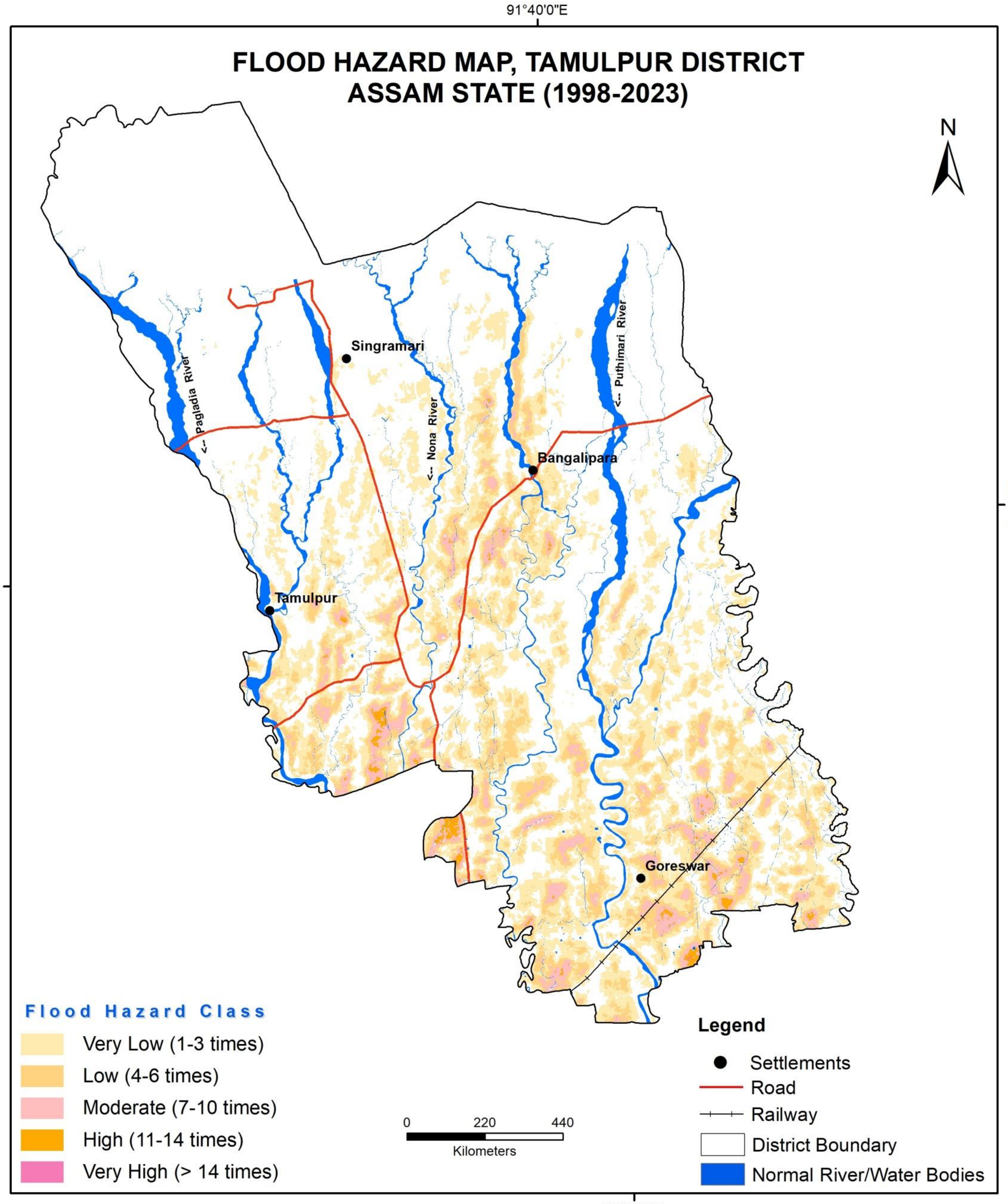


Land Use Land Cover map of Southsalmara District



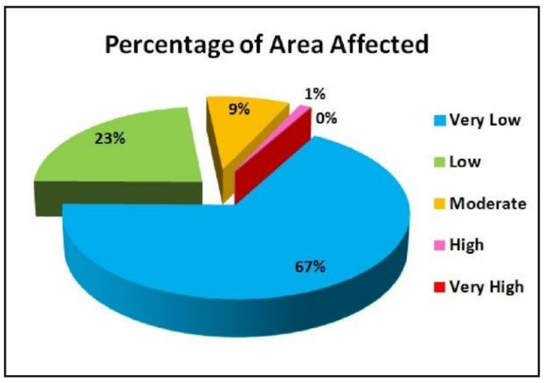
🟥 Built-Up
▨ Agriculture
🟩 Forest
▨ Grasslands / Grazing Lands
🟦 Water Bodies
▨ Wastelands
▨ Others




FLOOD HAZARD MAP, TAMULPUR DISTRICT
ASSAM STATE (1998-2023)
91°40'0"E
26°40'0"N
N
Singramari
Bangalipara
Tamulpur
Goreswar
<-- Pagladia River
<-- Nona River
<-- Puthimari River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	20243
2	Low	7027
3	Moderate	2671
4	High	351
5	Very High	4



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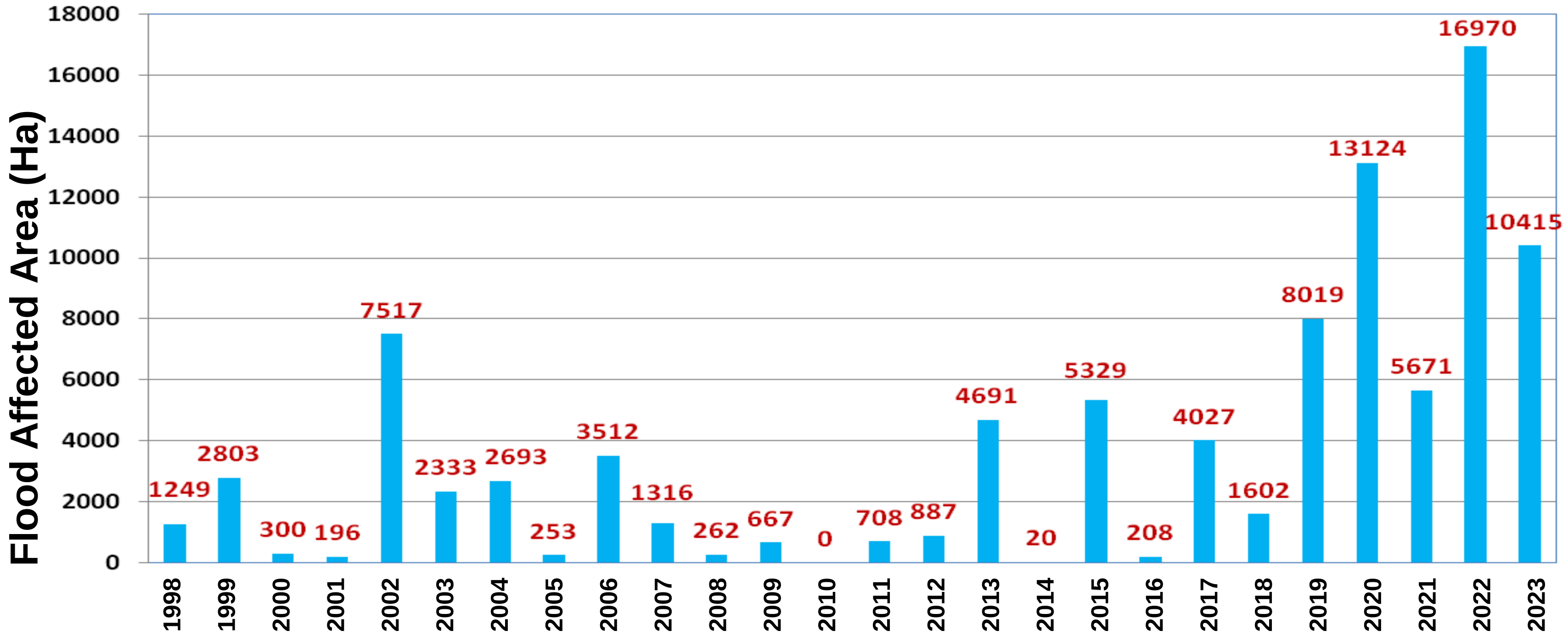
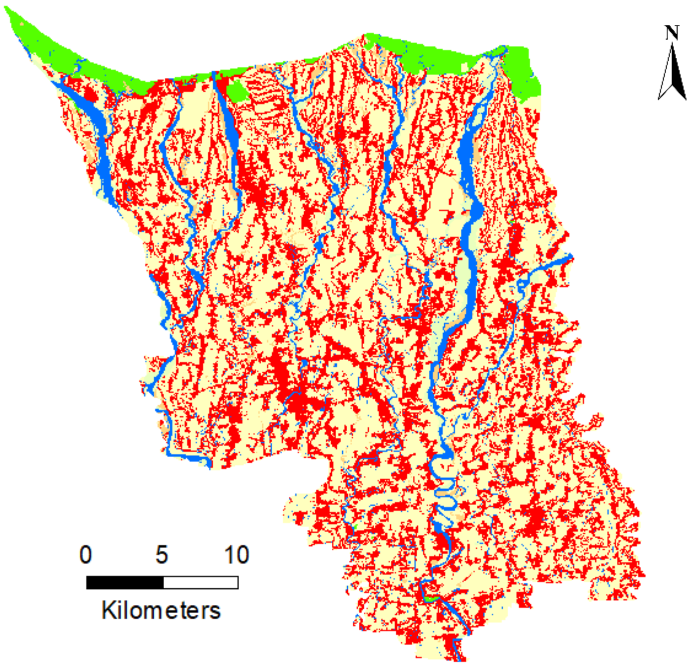
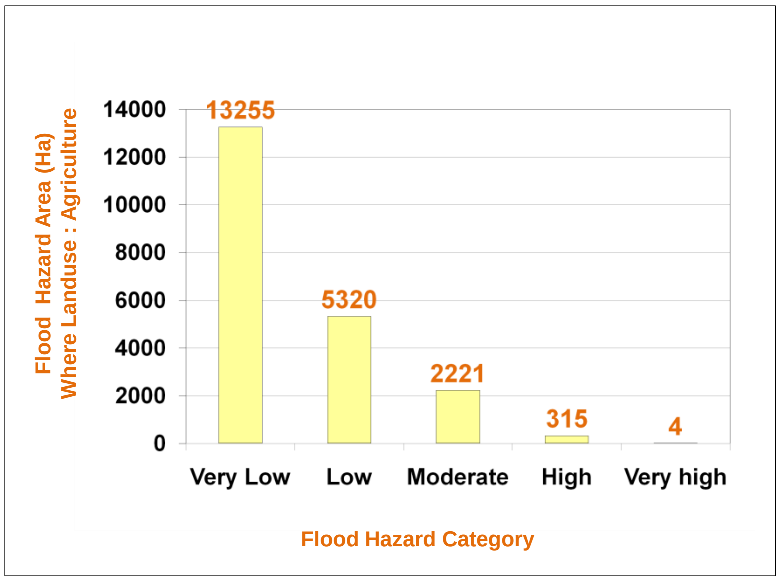
Annual Flood Affected Area in Tamulpur District during 1998-2023



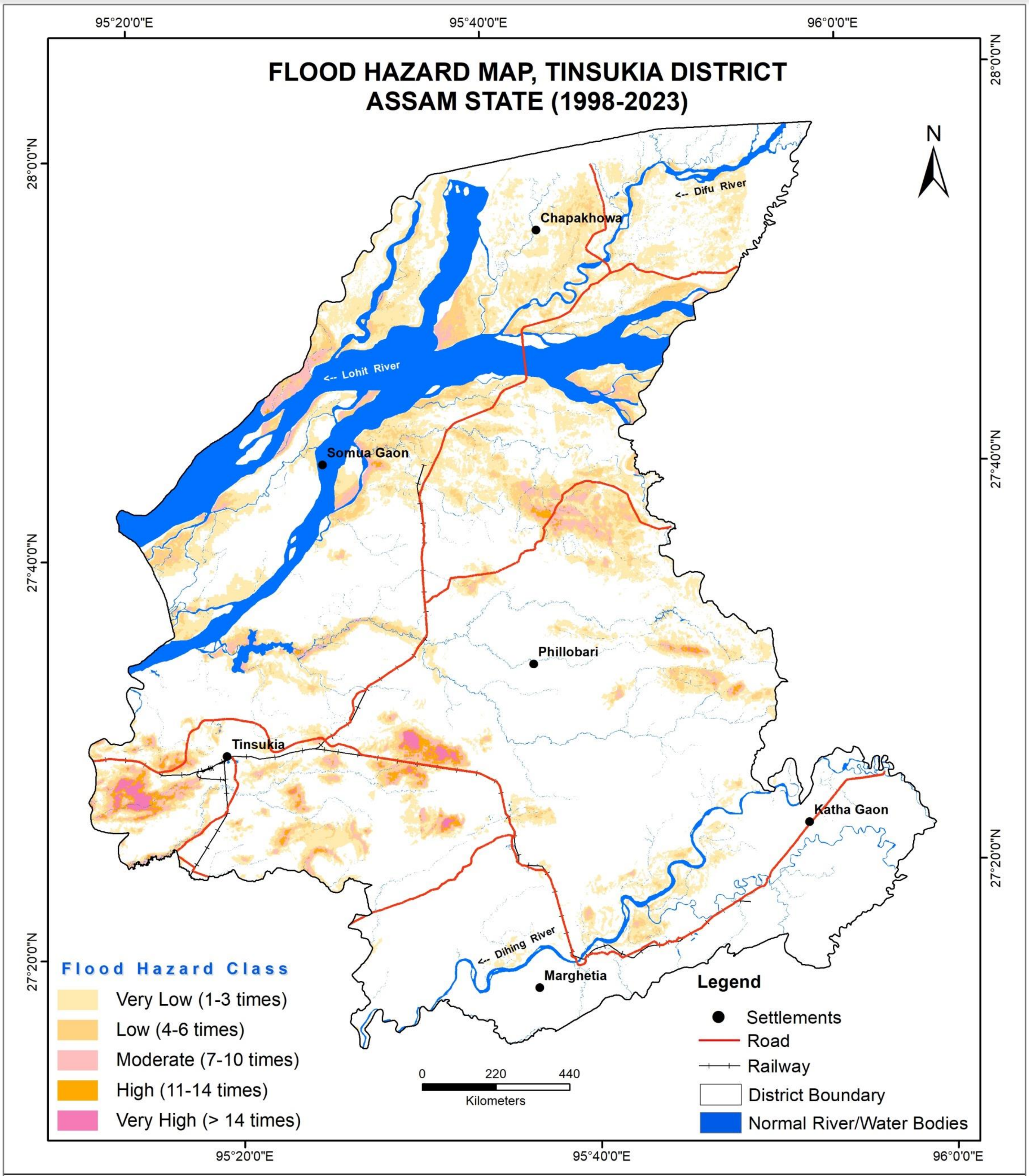
Land Use Land Cover map of Tamulpur District

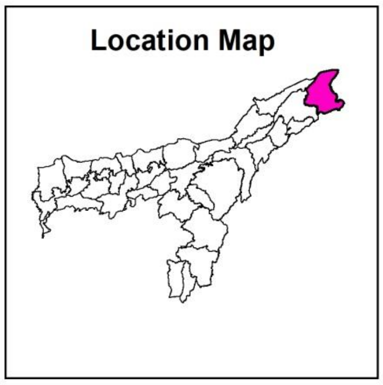


🟥 **Built-Up**
▨ **Agriculture**
🟩 **Forest**
▨ **Grasslands / Grazing Lands**
🟦 **Water Bodies**
🟧 **Wastelands**
⬜ **Others**

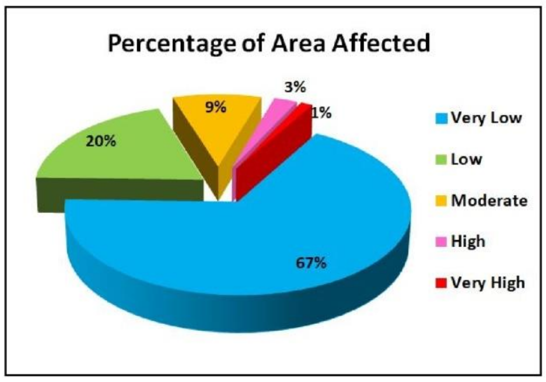


FLOOD HAZARD MAP, TINSUKIA DISTRICT ASSAM STATE (1998-2023)


95°20'0"E
95°40'0"E
96°0'0"E
28°0'0"N
27°40'0"N
27°20'0"N
N
<-- Difu River
Chapakhowa
<-- Lohit River
Somua Gaon
Phillobari
Tinsukia
Katha Gaon
<-- Dihing River
Marghetia
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies


Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	58798
2	Low	17327
3	Moderate	8202
4	High	2180
5	Very High	1128



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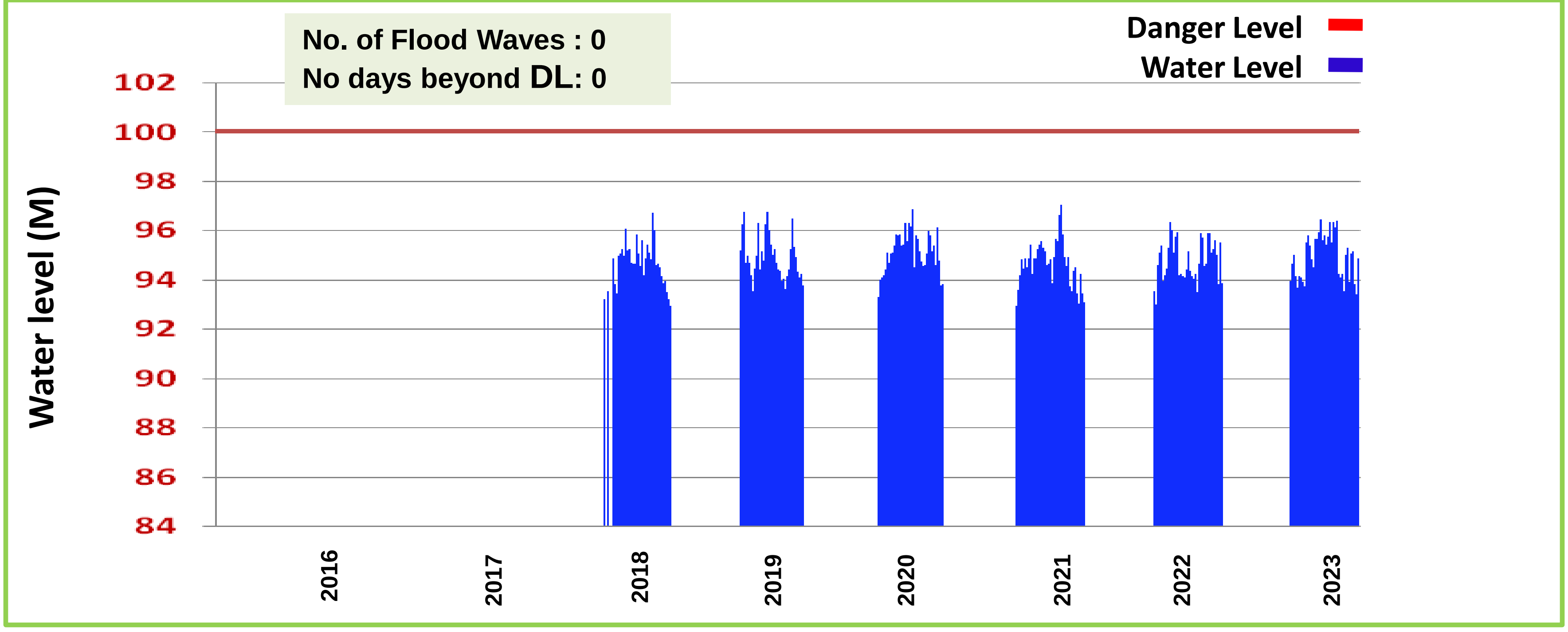
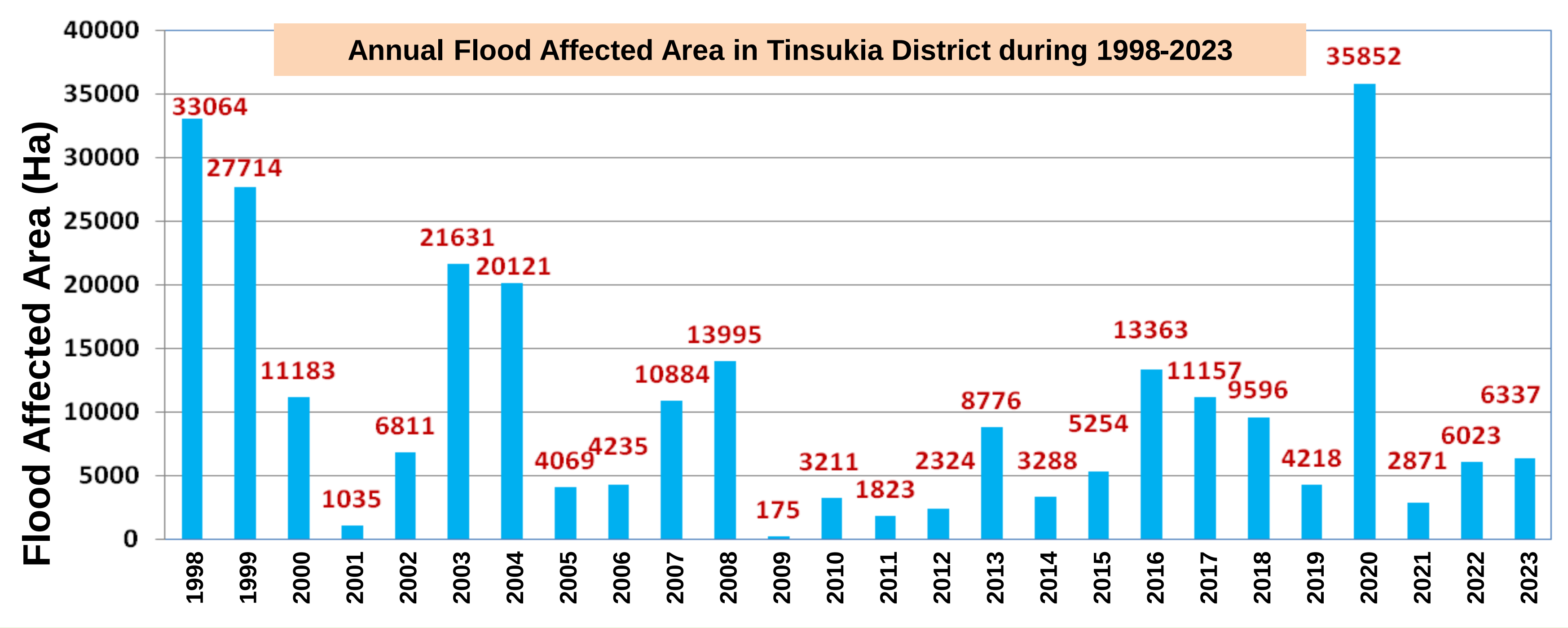
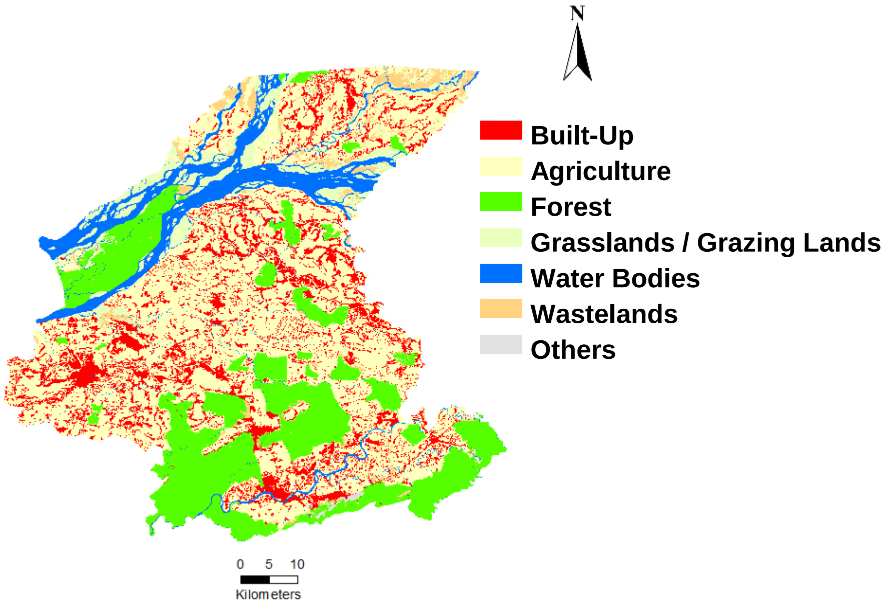
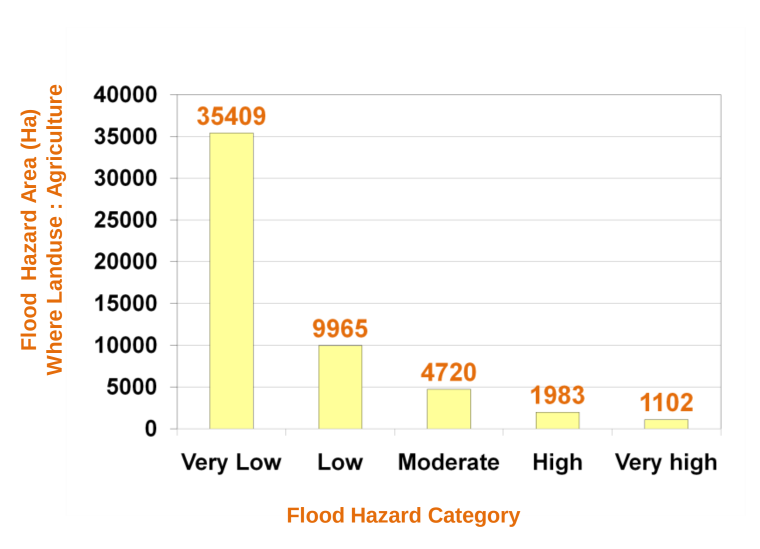


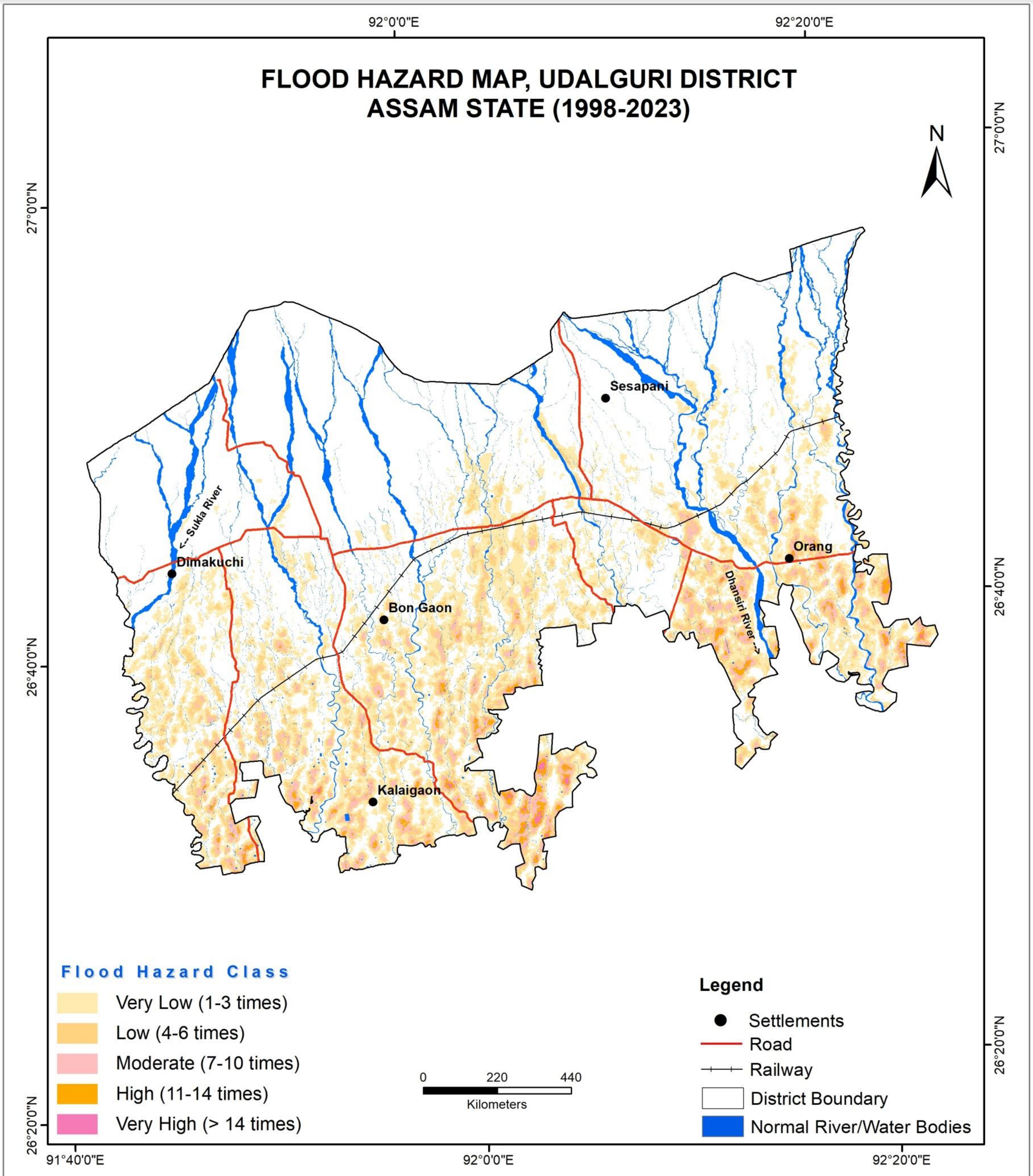
Water Levels at Badatighat Gauge Station during 1998-2023 (May-Oct)



Land Use Land Cover map of Tinsukia District

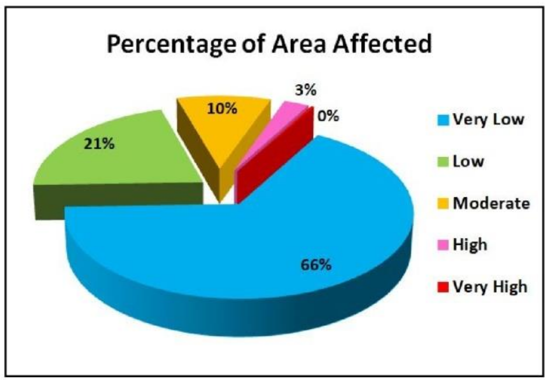

N
Built-Up
Agriculture
Forest
Grasslands / Grazing Lands
Water Bodies
Wastelands
Others
0 5 10
Kilometers




FLOOD HAZARD MAP, UDALGURI DISTRICT
ASSAM STATE (1998-2023)
N
92°0'0"E
92°20'0"E
27°0'0"N
26°40'0"N
26°20'0"N
91°40'0"E
Sesapani
<-- Sukla River
Dimakuchi
Orang
Dhansiri River -->
Bon Gaon
Kalaigaon
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
● Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	42181
2	Low	13387
3	Moderate	6281
4	High	1672
5	Very High	198



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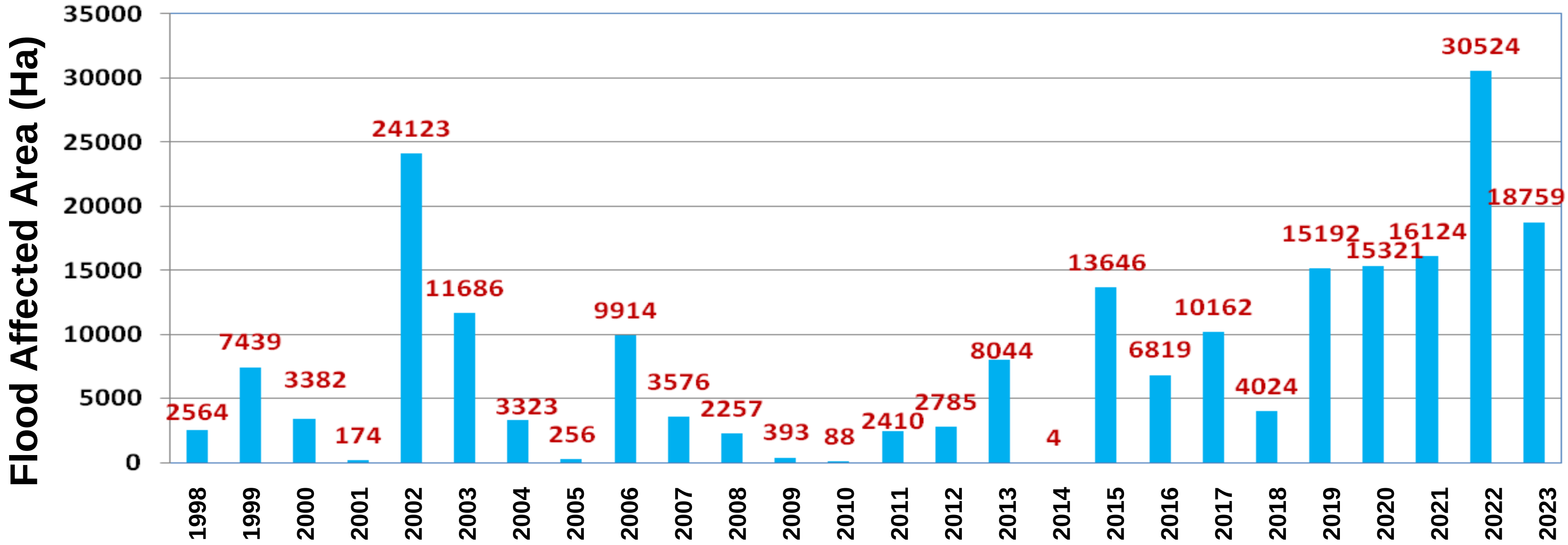
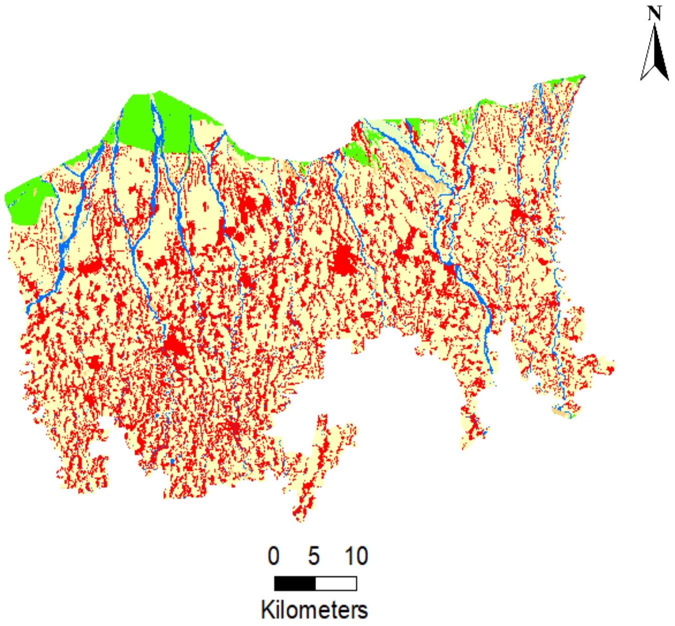
Balanagar, Hyderabad - 500 037

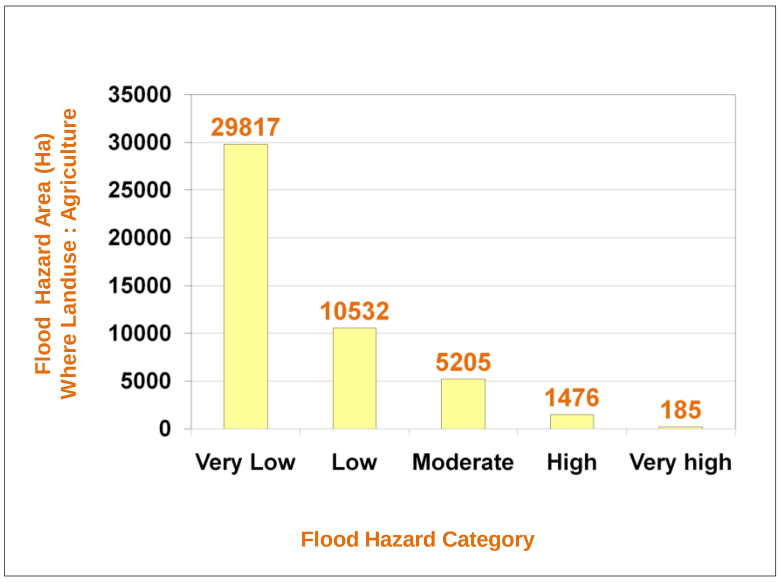
Annual Flood Affected Area in Udalguri District during 1998-2023

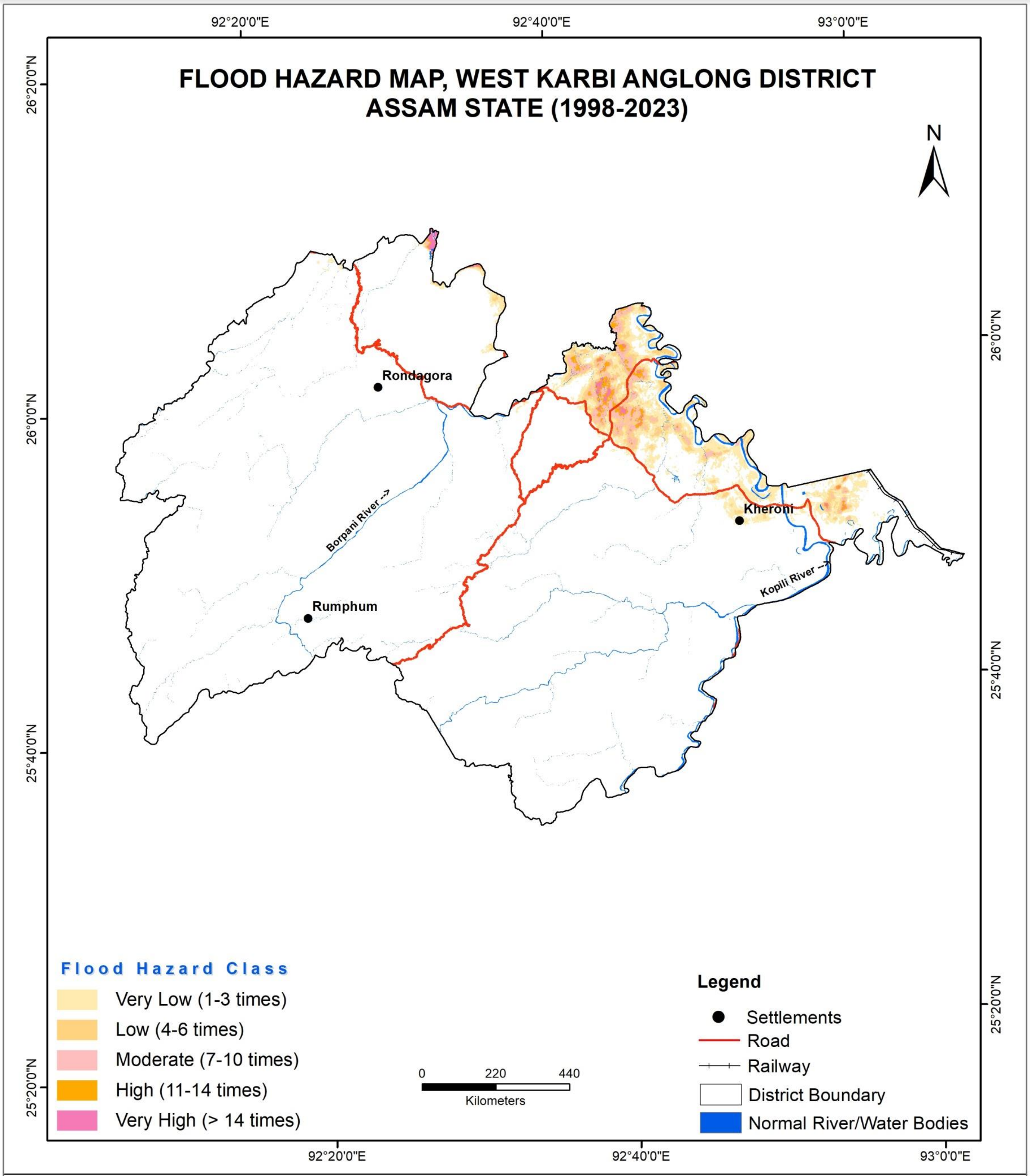


Land Use Land Cover map of Udalguri District

🟥 Built-Up
🟨 Agriculture
🟩 Forest
🟩 Grasslands / Grazing Lands
🟦 Water Bodies
🟧 Wastelands
⬜ Others

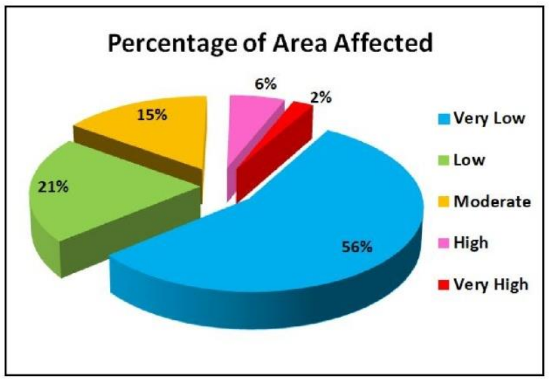





FLOOD HAZARD MAP, WEST KARBI ANGLONG DISTRICT
ASSAM STATE (1998-2023)
92°20'0"E
92°40'0"E
93°0'0"E
26°20'0"N
26°0'0"N
25°40'0"N
25°20'0"N
N
Rondagora
Rumphum
Kheroni
Borpani River
Kopili River
Flood Hazard Class
Very Low (1-3 times)
Low (4-6 times)
Moderate (7-10 times)
High (11-14 times)
Very High (> 14 times)
0
220
440
Kilometers
Legend
Settlements
Road
Railway
District Boundary
Normal River/Water Bodies

Location Map

S. No.	Hazard Severity	Flood Hazard Area (Hectares)
1	Very Low	9722
2	Low	3623
3	Moderate	2692
4	High	1010
5	Very High	381



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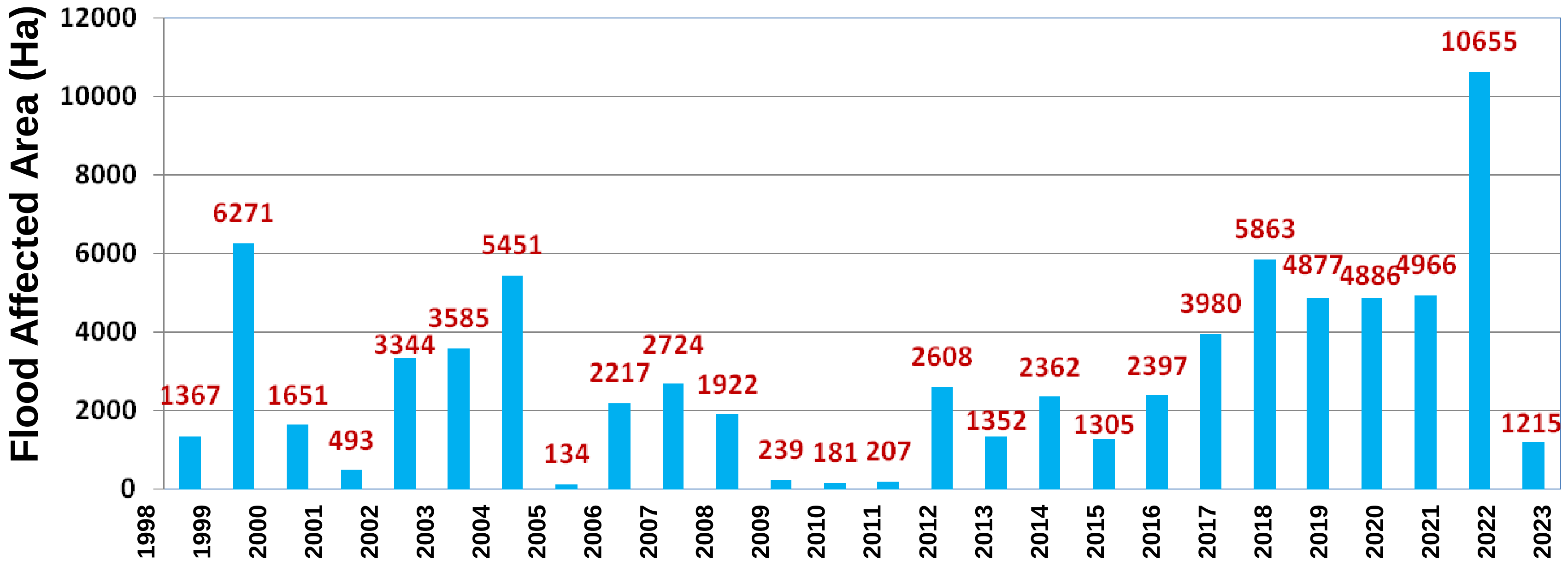
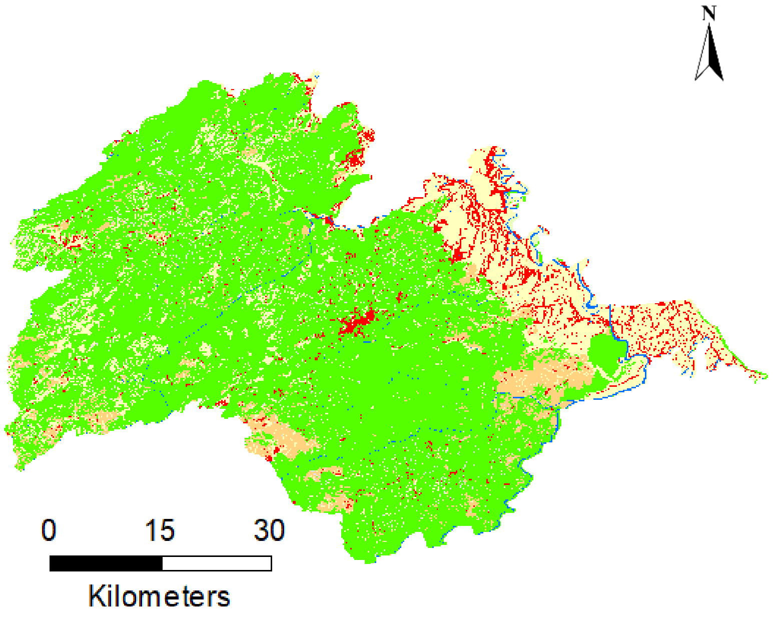
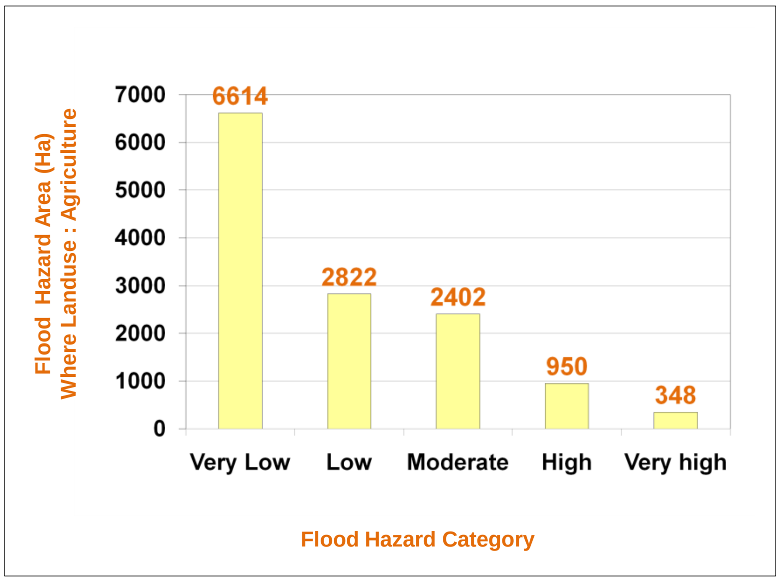
Annual Flood Affected Area in West Karbi Anglong District during 1998-2023



Land Use Land Cover map of West Karbi Anglong District

- 🟥 Built-Up
- 🟨 Agriculture
- 🟩 Forest
- 🟩 Grasslands / Grazing Lands
- 🟦 Water Bodies
- 🟧 Wastelands
- ⬜ Others





Village level information on
Flood Hazard Zonation Categories
Listed at Circle / District Level

Bajali District

BAJALI	
Barsaderi	Very High
Bhogpur	Very High
Ghatbar Saderi	Very High
Lesrapara	Very High
Nalipara	Very High
Pub Kathalmuri	Very High
Bandhasidhani	High
Daisingri	High
Dubi	High
Kanimara	High
Nagargaon	High
Panara	High
Pathcharkuchi	High
Titakataje	High
Titkagaria	High
Bagaon	Moderate
Barbairagi	Moderate
Bhethua	Moderate
Bhotanta Mahitata	Moderate
Dakshin Rehabari	Moderate
Kalbari	Moderate
Kochdiga	Moderate
Kurobaha	Moderate
Pathsalagaon	Moderate
Sathisamuka Bamunpara	Moderate
Sathisamuka Garemari	Moderate

SARUPETA	
Banglipara	Very High
Bangti	Very High
Bhogpur	Very High
Bogemari	Very High
Borkur	Very High
Cheki	Very High
Dolorpathar	Very High
Gathiapara	Very High
Gorapit	Very High
Katahbari	Very High
Niz Bhabanipur	Very High
Odalguri	Very High
Dhemchar Pathar	High
Dhupalpara	High
Haripur	High
Hathinapur	High
Karaguri Gaon	High
Madhya Kordoiguri	High
Medhikuchi	High
Nakuchi Pathar	High
Pub Kordoiguri	High
Singimari	High
Batua	Moderate
Borbhitha	Moderate
Chauliabori	Moderate
Darupara	Moderate
Golia	Moderate
Kahara	Moderate
Kalbari	Moderate
Katla	Moderate
Katlas Pathar	Moderate
Kurobaha	Moderate
Luasur	Moderate
Madhapur	Moderate
Namati	Moderate
Naosarka Par	Moderate
Pachim Kordoiguri	Moderate
Pub Loasur	Moderate
Puran Bhawanipur	Moderate

Baksa District

BAGANPARA	
Halapar	Moderate

BAJALI	
Pub Rehabari	Moderate

BARAMA	
Mahina	Moderate

BARNAGAR_BAKSA	
Kahdoba	Very High
Bajigaon	High
Khatalpara	High
Machua	High
Belguri	Moderate
Bunmajarpam	Moderate
Ganakpara	Moderate
Gobindapur	Moderate
Howli	Moderate
Mariajar Pathar	Moderate
Rangdiha	Moderate

JALAH	
Dhekiajani Pathar	High
Kiyadoba	High
Majorkuchi	High
Pakalagi	High
Patar Pathar	High
Sonafuli	High
Betbari	Moderate
Bogulapara	Moderate
Bogurtari	Moderate
Digzira	Moderate
Gatigaon	Moderate
Karhama	Moderate
Karnachara	Moderate
Kholihamari	Moderate
Pachim Rehabari	Moderate
Sarania Gaon	Moderate
Tangabari Gaon	Moderate

Barpeta District

BAGHBAR	
Agmandia	Very High
Baghbor Pathar	Very High
Balajan Gaon	Very High
Balapara	Very High
Barpalli	Very High
Bhatkuchi	Very High
Bhera No.4	Very High
Bhogr態ndha	Very High
Chapori Gaon	Very High
Chapori Pathar	Very High
Chasra No.1	Very High
Chasragaon	Very High
Dharmapur N.c.	Very High
Dolagaon	Very High
Dolarpam	Very High
Dolarpathar	Very High
Gajia	Very High
Gobindapur	Very High
Guralagaon	Very High
Habidongra	Very High
Jahanar Ghola	Very High
Jahanar Par	Very High
Jahanar Pathar	Very High
Kadamtala NC	Very High

Barpeta District

Kahibari Pam	Very High
Kandapara	Very High
Kapoha	Very High
Karertal	Very High
Kharkigaon	Very High
Lurfuria	Very High
Mahammadpur	Very High
Mandia Gaon	Very High
Mandia Pathar	Very High
Matharanga	Very High
Mauripam	Very High
Morabhaj	Very High
Palar Pam	Very High
Rampara Gaon	Very High
Rampara Pam	Very High
Rampara Pathar	Very High
Ranir Ram	Very High
Rowmari	Very High
Salekura	Very High
Saorabhitha	Very High
Satmukhi	Very High
Saurar Pathar	Very High
Shilochi	Very High
Sidhani	Very High
Aligaon N.c.	High
Aligaon Pam	High
Aligona	High
Bagbor Gaon	High
Baksha Badha	High
Balikuri Pam	High
Barligaon	High
Chasra No.2	High
Dakshin Sitoli	High
Digir Pathar	High
Digirpar	High
Garalagaon	High
Garala Char	High
Garala Pam	High
Garala Shuti	High
Jahanagaon	High
Jahanar Pam	High
Kalgachi	High
Kalpani	High
Kanchanpur	High
Kapah Toli	High
Laharapara	High
Maminpur	High
Medhirtari	High
Niz-Baghbar	High
Rupakuchi	High
Aligaon Pathar	Moderate
Alipur	Moderate
Balikuri K	Moderate
Balikuri N.c.	Moderate
Banglipara	Moderate
Bhairarpam	Moderate
Chanpur	Moderate
Chiknirpar	Moderate
Daukmari	Moderate

Barpeta District

Gagalmari	Moderate
Hasanpur	Moderate
Jania	Moderate
Kadong	Moderate
Kanara Gaon	Moderate
Kawaimari	Moderate
Mandia Bardalani	Moderate
Maurigaon	Moderate
Rasulpur	Moderate
Rasulpur No.1	Moderate
BARPETA	
Bamun Baradi	Very High
Bamuna	Very High
Banbaria	Very High
Bara	Very High
Baradi	Very High
Baramara	Very High
Barbaradi	Very High
Barghol	Very High
Bariya Pathar	Very High
Bheraldi	Very High
Budarurtup	Very High
Chakabausi Gaon	Very High
Chakabausi Pathar	Very High
Chakirbhitha	Very High
Dokania Bil	Very High
Debradi	Very High
Fatigrah	Very High
Ganakkuchi	Very High
Garemara Habi	Very High
Kacharipara	Very High
Kahibari	Very High
Kahikuchi	Very High
Keyotpara	Very High
Khandarkur	Very High
Khapanbariabhitha	Very High
Khardhara Pathar	Very High
Kharuapara	Very High
Majar Gaon	Very High
Majkuchi	Very High
Moukhari	Very High
Nangalkur	Very High
Nasatra	Very High
Oumura	Very High
Pahumara	Very High
Pajarbhanga	Very High
Paka Betbari Pam	Very High
Paka Betbari Pathar	Very High
Pakdah Bilar Pathar	Very High
Panisila	Very High
Radhakuchi	Very High
Habi Radhakuchi	Very High
Satra Baradi	Very High
Suagpur	Very High
Taparbari	Very High
Tatikuchi	Very High
Teklarbala	Very High
Bamunkuchi	High
Bantipur	High
Baragdia	High
Barpeta Town	High
Barsuha	High
BARNAGAR_BARPETA	
Dwarika	High
Meda	High
Nichuka	High
Balapat	Moderate
Barpeta Road Town	Moderate
Jakuapara	Moderate
Kayastha Gaon	Moderate
Puthirmari	Moderate
Rampur	Moderate
Batikuriha	High
Betbari Pathar	High
Bhairaguri Pam	High
Swaragpara	High
Dakreswar	High
Damaljhar	High
Damrabowa	High
Dhakua	High
Dongra	High
Fulorguri	High
Gaherpam	High
Hahchara Bil	High
Jabrikuchi	High
Kaljahi Pathar	High
Kumulliapara	High
Nagaon	High
Patbousi	High
Sila	High
Suhabildalani	High
Temura	High
Bagaijan	Moderate
Bonbaha	Moderate
Betbari	Moderate
Bhalukabari Pathar	Moderate
Bhulkabari Gaon	Moderate
Dewrikuchi	Moderate
Dhanbandha	Moderate
Gandhi	Moderate
Garemari Gaon	Moderate
Garemari Pathar	Moderate
Hatijana	Moderate
Jarabari	Moderate
Joshihati	Moderate
Kalijar	Moderate
Kamalpur	Moderate
Kamalpur Pam	Moderate
Kathalartari	Moderate
Keotkuchi	Moderate
Khablarbhitha	Moderate
Khandarpar	Moderate
Kuzarpith	Moderate
Mailkuchi	Moderate
Palhaji	Moderate
Putulartari	Moderate
KALGACHIA	
Barhowra	Very High
Bondarmura	Very High
Fulara	Very High
Paschim Dewldi I	Very High
Puram Sikatari	Very High
Sikatari Gaon	Very High
Sikatari Pathar	Very High
Sri Rampur	Very High
Galia	Very High
Kasukati	Very High
Bardanga	Very High
Hatijana	Very High
Pathaliapara	Very High
Kayakuchi	Very High
Chatla N.c.	High
Joypur Pathar	High
Kayakuchi Pathar	High
Khandakar Para	High
Kismat Mayanbari N.c.	High
Niz mayanbari	High
Pathar Chali	High
Sutir Pather	High
Kharballi	High
Amguri	High
Sawrachara D-Reserve	High
Sawrachara Pathar	High
Sawrachara Gaon	High
Chikni D-Reserve	High
Jaurimari D-Reserve	High
Takakata	High
Sonabari	High
Balikuri Gaon	High
Balikuri Pathar	High
Jaurimari Gaon	High
Aprupi	Moderate
Balai Pathar	Moderate
Gobindpur	Moderate
Hapachar	Moderate
Hapachar Pathar	Moderate
Hatcharea	Moderate
Kalgachia	Moderate
Kismat Mayanbari	Moderate
Mayanbaripam	Moderate
Satra Mayanbari	Moderate
Solmari	Moderate
Tarakandi N.c.	Moderate
Sawpur	Moderate
Digjani	Moderate
Bankabhanga	Moderate
Khelli	Moderate
Khatartari	Moderate
Rampur	Moderate
SATHEBARI	
Bogchara	Very High
Dewankshetri	Very High
Gahia	Very High
Gumir Pathar	Very High
Hariadi Pathar	Very High
Jashuda Pam	Very High
Kaldi	Very High
Kalijahi Pathar	Very High
Kapahartari	Very High
Kayakuchi Gaon	Very High
Khapanikuchi	Very High
Kshudra Chinadi	Very High
Maricha	Very High
Maricha Pathar	Very High
Nalir Pam	Very High
Nalir Pathar	Very High

Barpeta District	
Nasatra	Very High
Pakadalani	Very High
Panimaricha	Very High
Panimaricha Pathar	Very High
Pithadipam	Very High
Agdia Pathar	High
Balarbari	High
Bar Faladi	High
Bar Gomura	High
Barghopa	High
Barmara	High
Belbari Pathar	High
Bhogdia	High
Burikhamara	High
Byashkuchi	High
Chengdi	High
Chinadi Pathar	High
Eragaon	High
Fulbari	High
Gadeshalipam	High
Haladibari	High
Jabrikuchi	High
Jalkara	High
Kayakuchi Pam	High
Kayakuchi Pathar	High
Kshudra Phaladi	High
Kusihar Pam	High
Newlarbhitha	High
Pub Aladi	High
Rangianadir Pam	High
Rangigaon	High
Sariyahkuchi	High
Satra Paka	High
Singra	High
Teleria	High
Thekagaon	High
Bagurirtari	Moderate
Bamundi	Moderate
Bamunpaka	Moderate
Barbilar Pathar	Moderate
Barkapla	Moderate
Baysha	Moderate
Bhakuatepa	Moderate
Era Kacharipara	Moderate
Erartari	Moderate
Garartari	Moderate
Garia Chatla	Moderate
Helcharpam	Moderate
Kaldi Pathar	Moderate
Kamalabari	Moderate
Karakuchi	Moderate
Kshudra Bamunbari	Moderate
Nalirgaon	Moderate
Namshala	Moderate
Pashim Aladi	Moderate
Pithadigaon	Moderate

Biswanath District	
BISWANATH	
Balidubi (part)	Very High
Barbil T.e.	Very High
Batiamari N.c.4	Very High
Japariguri	Very High
Kathanibari	Very High
Kumurakhati Pgr	Very High
Nelpur T.e.	Very High
Niz Biswanath Gaon	Very High
Chilamari N.c.	High
Pabhoi Gaon	High
Bapujhar	Moderate
Bihpukhuri Bangali	Moderate
Borpathar No.3	Moderate
Borpathar No.4	Moderate
Fatika Gaon	Moderate
Gohalibhanga	Moderate
Lao Dalani	Moderate
Phatika (part)	Moderate
Pithiamari	Moderate
Telengania (part)	Moderate
GOHPUR	
Charaibari Mirigaon No.1	Very High
Chatrang N.c.	Very High
Dhandi Pathar	Very High
Gohpur N.c. No.1	Very High
Kharai Pam N.c. No.1	Very High
Kharai Pam N.c. No.3	Very High
Kharai Pam N.c. No.4	Very High
Pichala Mirigaon	Very High
Saribari Gaon	Very High
Tinsukia Mirigaon No.1	Very High
Balitika	High
Bejisutimiri No.2	High
Bejisutimiri No.3	High
Bherbheri Pathar	High
Charaibari Mirigaon No.2	High
Dila Pukhuri N.c.	High
Gohpur N.c. No.2	High
Kakila N.c. No.1	High
Kakila N.c. No.2	High
Khatar Pathar	High
Kutum Gaon	High
Raonamiri Gaon	High
Sakua Pgr No.2	High
Tengakhowa Bari	High
Tihulabari	High
Tinsukia Mirigaon No.2	High
Tinsukia Mirigaon No.3	High
Aunibari	Moderate
Baligaon	Moderate
Barfarlong N.c.	Moderate
Chakalagaon No.1	Moderate
Chakalagaon No.2	Moderate
Chiraichowa Miri No.3	Moderate
Dila Pukhuri	Moderate
Doladolani No.2	Moderate
Gajpuria Gaon	Moderate
Gohpur Pathar	Moderate
Kakilaguri	Moderate
Kamdewal N.c. No.2	Moderate
Kharanijan	Moderate
Kuhilaguri N.c.	Moderate
Majikuchi	Moderate
Mornoiguri	Moderate
Pichala N.c. No.1	Moderate
Rajabahar Pathar	Moderate
Sakua Pgr No.1	Moderate
HELEM	
Akhaiphuta	Very High
Bakarjdalani	Very High
Balijan Chapari	Very High
Barhatiguri	Very High
Bartamuli Mirigaon N.c. No.1	Very High
Bartamuli Mirigaon N.c. No.2	Very High
Batamari N.c.	Very High
Berjahabari	Very High
Bordoloni	Very High
Buraight Lower	Very High
Chatrang	Very High
Chenimari N.c.	Very High
Dalhousie T.e.	Very High
Dathkhola	Very High
Ghehua N.c.	Very High
Ghimarujan	Very High
Gopal Jarani	Very High
Hatibandha Gaon	Very High
Hatijan	Very High
Jakapara	Very High
Kawaimari	Very High
Lohilmukh	Very High
Mirigaon	Very High
Miripathar	Very High
Mornabari	Very High
Purubbari Kachari	Very High
Salna Pathar	Very High
Amlakhi Dalani	High
Bagarpathar	High
Baranipathar	High
Dalhousie Kachari	High
Hatijan N.c.	High
Khatarbari	High
Magani Miri Pathar	High
Sarutamuli Mirigaon N.c. No.1	High
Toltoli	High
Afrakhat	Moderate
Bekijan	Moderate
Dighali Pathar	Moderate
Fatihabari	Moderate
Gadharia Pathar	Moderate
Galchepa	Moderate
Hatibandha N.c.	Moderate
Kemai Jarani	Moderate
Kauri Pathar	Moderate
Madhya Chatrang N.c.	Moderate
Rangalial Gaon	Moderate
Sako Matha	Moderate
Sarutamuli Mirigaon N.c. No.2	Moderate
NADUAR_BISWANATH	
Majar Ali	Very High
Nalbari Gaon No.3	Very High
Nalbari Gaon No.2	High
Nalbari Gaon No.1	Moderate
Siparia Chapari	Moderate

Bongaigaon District

BOITAMARI

Chalantapara Part Ii	Very High
Chalantapara Part Iii	Very High
Chalantapara Part I	Very High
Halongarchar N.c.	Very High
Hokodoba Part I	Very High
Islampur	Very High
Jhaukura Part Ii	Very High
Jhaukura Part Iii	Very High
Kaboitari Part Iii	Very High
Kaboitari Part Iv	Very High
Kharsimari	Very High
Kharsimari Part Ii	Very High
Kharsimari Part Iii	Very High
Kheluapara Part I	Very High
Kheluapara Part Ii	Very High
Madhyerchar Part I	Very High
Madhyerchar Part Ii	Very High
Mazer Alga Bartikchar	Very High
Satsobighar Char Part Ii	Very High
Uchungar Char Part I	Very High
Uchungar Char Part Ii	Very High
Uchungar Char Part Iii	Very High
Uchungar Char Part Iv	Very High
Uttampur	Very High
Dinanathpur	Very High
Bhatipara	High
Katashbari Part I	High
Kayemmazer Alga Part I	High
Kayemmazer Alga Part Ii	High
Maizana Beel	High
Bhutkura Part I	High
Bhutkura Part Ii	High
Bhutkura Part Iii	High
Bechimari	Moderate
Bechimari	Moderate
Bowalimari Part Ii	Moderate
Katlamari South Part I	Moderate
Katlamari South Part Ii	Moderate
Katashbari Part Ii	Moderate
Katashbari Part Iii	Moderate
Kheluapara Part Iv	Moderate
Kheluapara Part V	Moderate
Kherpuzi Part I	Moderate
Nayapara Part Iii	Moderate

BONGAIGAON

Barchangaon Part I	Moderate
Birjhora T.e.	Moderate
Mulagaon Sennapara	Moderate
Nagariagaon	Moderate

MANIKPUR

Bhatipara	High
Jaragori No.3	High
Jhawbari	High
Palengbari No.1	High
Bridhabashi No.1	High
Manikpur	Moderate
Nawapara No.2	Moderate

SRIJANGRAM

Amguri Part I	Very High
Amguri Part Ii	Very High
Barzana Part Ii	Very High
Barzana Part Iii	Very High
Batabari	Very High
Bhakuramari Part I	Very High
Bhakuramari Part Ii	Very High
Brihara	Very High
Char No.6	Very High
Chota Bazana	Very High
Kaboitari Part I	Very High
Kaboitari Part Ii	Very High
Kacharipet Part Iii	Very High
Khoragaon Part Iii	Very High
Kokila Nayapara	Very High
Lalmati	Very High
Lattibari Part I	Very High
Lattibari Part Ii	Very High
Mohanpur Part I	Very High
Mohanpur Part Ii	Very High
Pachania Part Ii	Very High
Piradhara Part Ii	Very High
Rangapani	Very High
Tinkonia Part I	Very High
Uttar Khoragaon Part I	Very High
Tinkonia Part Iii	Very High
Banglapara	High
Bhamapara	High
Madhuphal	High
Newpira Dhara	High
Piradhara Part I	High
Simlabari Part Iii	High
Balargudam	Moderate
Barzana Part I	Moderate
Bharalipara Part I	Moderate
Char No.5	Moderate
Janermukh	Moderate
Kalkura Part I	Moderate
Khoragaon Part Ii	Moderate
Kokila Maulabipara	Moderate
Kushbari Part I	Moderate
Lattibari Part Iii	Moderate
Naldoba	Moderate
Pikna Para	Moderate
Sikatari Part Ii	Moderate
Tinkonia Part Ii	Moderate

Cachar District

KATIGORA

Algapur	Very High
Barjatrapur	Very High
Behara Pt. Iii	Very High
Behara Pt. Iv	Very High
Behara Pt. V	Very High
Behara Pt. Vi	Very High
Bhairabpur Pt. I	Very High
Bhairabpur Pt. Ii	Very High
Bhairabpur Pt. Iii	Very High
Bhairabpur Pt. Iv	Very High
Bhairabpur Pt. V	Very High
Bhairabpur Pt. Vi	Very High
Bhangarpar Pt. I	Very High
Bhangarpar Pt. Ii	Very High
Bhangarpar Pt. Iii	Very High
Bhangarpar Pt. Iv	Very High
Bhangarpar Pt. V	Very High
Bhangarpur	Very High
Bhatarchak	Very High
Bhatgram	Very High
Boraitali Pt. I	Very High
Boraitali Pt. Ii	Very High
Boraitali Pt. Iii	Very High
Boraitali Pt. Iv	Very High
Boraitali Pt. V	Very High
Buribail Part I	Very High
Buribail Part Ii	Very High
Burunga Ii	Very High
Chaliagram	Very High
Chandinagarh Part I	Very High
Chandinagarh Part Ii	Very High
Chandinagarh Part Iii	Very High
Chandinagarh Part Iv	Very High
Chandinagarh Part V	Very High
Chandinagarh Part Vi	Very High
Chandipur	Very High
Chandpur Part I	Very High
Chandpur Pt. Ii	Very High
Chandpur Pt. Iii	Very High
Chandpur Pt. Iv	Very High
Chandpur Pt. V	Very High
Digabar T.e.	Very High
Dudhpur Part I	Very High
Dudhpur Part Ii	Very High
Dudhpur Part Iii	Very High
Gobindapur I	Very High
Gobindapur Ii	Very High
Gobindapur Iii	Very High
Gohindakupa	Very High
Gonirgram Pt. Iii	Very High
Gonirgram Pt. Iv	Very High
Gumragram	Very High
Harinagar Pt. Iv	Very High
Jagadishpur Pt. I	Very High
Jagadishpur Pt. Ii	Very High
Jagadishpur Pt. Iii	Very High
Jagadishpur Pt. Iv	Very High
Jagadishpur Pt. V	Very High
Karaikandi Pt. I	Very High
Karaikandi Pt. Ii	Very High
Khelma Pt. I	Very High
Khelma Pt. Ii	Very High
Khelma Pt. Iii	Very High
Khelma Pt. Iv	Very High
Khelma Pt. V	Very High
Khelma Pt. Vi	Very High
Khelma Pt. Vii	Very High
Kurkuri Pt. Ii	Very High
Kurkuri Pt. Iii	Very High
Lakhipur Pt. Ii	Very High
Lakhipur Pt. Iii	Very High
Lohomali	Very High
Mahadebpur Pt. I	Very High
Mahadebpur Pt. Ii	Very High
Mahadebpur Pt. Iii	Very High
Mahadebpur Pt. Iv	Very High
Mohanpur Pt. I	Very High
Mohanpur Pt. Ii	Very High
Mongram	Very High
Monipur Pt. I	Very High
Monipur Pt. Ii	Very High
Nichintapur	Very High
Niz-fulbari Pt. Ii	Very High
Niz-haritikar Pt. I	Very High
Niz-jalalpur Pt. I	Very High
Niz-jalalpur Pt. Ii	Very High
Niz-katigorah Pt. I	Very High
Niz-leverputa Pt. I	Very High
Niz-leverputa Pt. Ii	Very High
Paikon	Very High

Cachar District

Pirnagar	Very High
Pratapipara	Very High
Rajyeswarpur Pt. I	Very High
Rajyeswarpur Pt. Ii	Very High
Salimabad	Very High
Saraspur	Very High
Sewtigram Pt. Ii	Very High
Sewtigram Pt. Iii	Very High
Sewtigram Pt. Iv	Very High
Sibnarainpur	Very High
Sonapur Part I	Very High
Sonapur Part Iii	Very High
Syedpur Pt. I	Very High
Syedpur Pt. Ii	Very High
Syedpur Pt. Iii	Very High
Talkar Bill	Very High
Tarapur	Very High
Tarapur	Very High
Tarinipur Pt. I	Very High
Tarinipur Pt. Ii	Very High
Tarinipur Pt. Iii	Very High
Telitikar Pt. I	Very High
Telitikar Pt. Ii	Very High
Kurkuri Pt. Iv	High
Niz-fulbari Pt. Iii	High
Rangpur	High
Siddheswar Pt. Ii	High
Brahmangram	Moderate
Buribail Part Iii	Moderate
Burunga Iv	Moderate
Gonirgram Pt. I	Moderate
Gonirgram Pt. Ii	Moderate
Harinagar Pt. I	Moderate
Harinagar Pt. Ii	Moderate
Harinagar Pt. Iii	Moderate
Kurkuri T.e.	Moderate
Lathimara	Moderate
Nazatpur	Moderate
Niz-fulbari Pt. I	Moderate
Patharigram	Moderate
Raipur	Moderate
Ranghar Part Ii	Moderate
Sewtigram Pt. I	Moderate
Siddheswar Pt. I	Moderate
LAKHIPUR_CAHAR	
Binnakandi Grant	Very High
Boali Grant	Very High
Chandrapur Pt. I	Very High
Chandrapur Pt. Ii	Very High
Chotomanda Grant	Very High
Kaptanpur Iii	Very High
Kaptanpur Xi	Very High
Kaptanpur Xii	Very High
Rubberpur	Very High
Kaptanpur Vi	High
Lakhipur Town	High
Lalang Iii	High
Niz Lakhipur Pt. Ii	High
Niz Lakhipur Pt. Iii	High
Ujan Tarapur	High
Chengjur Grant	Moderate
Cihirpar I	Moderate
Hatikuri Grant	Moderate
Lalang I	Moderate
Nayagram	Moderate
Niz Lakhipur Pt. I	Moderate
SILCHAR	
Ambikapur I	Very High
Ambikapur Ii	Very High
Ambikapur Iii	Very High
Ambikapur Iv	Very High
Ambikapur V	Very High
Ambikapur Vi	Very High
Badarpur Pt. Ii	Very High
Bariknagar I	Very High
Bariknagar T.e.	Very High
Bhajantipur Ii	Very High
Bhajantipur Iii	Very High
Bhitar Gangapur Pt. I	Very High
Borkhola Part I	Very High
Chengdowar Ii	Very High
Chotodudpatil Grant	Very High
Diogor Srikuna I	Very High
Diogor Srikuna Ii	Very High
Do-bag	Very High
Dudpatil I	Very High
Dudpatil Ii	Very High
Dudpatil Iii	Very High
Dudpatil Iv	Very High
Dudpatil V	Very High
Durgapur	Very High
Goverbond Ii	Very High
Haltia (kathal Grant)	Very High
Harin Cherra T.e.	Very High
Hatirhar I	Very High
Hiairband Part I	Very High
Hiairband Part Ii	Very High
Irongmara	Very High
Jaiforpur	Very High
Jareiltala	Very High
Kumarpara	Very High
Massimpur Part I	Very High
Mulidhar Grant	Very High
Narainpur Iv	Very High
Nichintapur	Very High
Niz Borkhola Part Ii	Very High
Niz Joynagar	Very High
Paschim Biroin Haor	Very High
Rakhalkhalarpar Ii	Very High
Raninagar	Very High
Salchapara Grant	Very High
Silcooria T.e.	Very High
Sildubi	Very High
Srikuna I	Very High
Srikuna T.e.	Very High
Tapang I	Very High
Tarutazabari I	Very High
Tarutazabari Ii	Very High
Badarpur Pt. I	High
Hatirhar Ii	High
Kalinagar Part Ii	High
Natun Dayapur	High
Ujangram	High
Ujangram	High
Baglaghat I	Moderate
Bararampur	Moderate
Bhairabnagar	Moderate
Chesri	Moderate
Chincooria Grant	Moderate
Dadisonapur	Moderate
Dudpatil Viii	Moderate
Ghagrapar I	Moderate
Ghagrapar Ii	Moderate
Kalinagar T.e.	Moderate
Kashipur I	Moderate
Krishnapur	Moderate
Machughat	Moderate
Mahadebpur	Moderate
Narsingpur I	Moderate
Niz Chatla Tarapur	Moderate
Peladhar	Moderate
Purandarpur	Moderate
Rakhalkhalarpar I	Moderate
Salchapara I	Moderate
Sarail	Moderate
Shridharpur	Moderate
Srikuna Ii	Moderate
Srikuna Iii	Moderate
Tupkhana I	Moderate
SONAI	
Algapur I	Very High
Algapur Ii	Very High
Badripar Iii	Very High
Badripar V	Very High
Bagpur Iii	Very High
Balicherri F.v.	Very High
Bariknagar T.e.	Very High
Baurikandi I	Very High
Berabak Ii	Very High
Boalihowor	Very High
Dakhin Mohanpur Ii	Very High
Dakhin Mohanpur Iv	Very High
Dakhin Mohanpur Ix	Very High
Dakhin Mohanpur Vii	Very High
Dakhin Mohanpur Viii	Very High
Dakhin Mohanpur X	Very High
Dakhin Mohanpur Xi	Very High
Dhanipur	Very High
Didarkush I	Very High
Didarkush Ii	Very High
Durgapur	Very High
Gobinda Nagar	Very High
Gobindapur I	Very High
Gobindapur Ii	Very High
Gobindapur Iii	Very High
Kachudaram Pt. Ii	Very High
Kachudaram Pt. Iii	Very High
Kajidahar I	Very High
Kaptanpur Xiii	Very High
Kaptanpur Xiv	Very High
Kaptanpur Xv	Very High
Kaptanpur Xvi	Very High
Malugram	Very High
Nagadirgram Ii	Very High
Nagadirgram Iii	Very High
Narsingpur Ii	Very High
Nutan Kanchanpur	Very High
Nutan Ramnagar I	Very High
Nutan Ramnagar Ii	Very High
Nutan Ramnagar V	Very High
Punimukh	Very High
Rangirghat Ii	Very High
Rangirghat Iii	Very High
Rukni Iii	Very High
Saidpur Iii	Very High
Berabak I	High
Kachudaram Pt. I	High

Cachar District

Kajidahar Ii	High
Mohadebpur	High
Niz Banskandi Pt. Ii	High
Niz Banskandi Pt. Iii	High
Sapatgram	High
Satkarakandi Ii	High
Thankim Nagar Iii	High
Arjanpur	Moderate
Berabak Iii	Moderate
Bidruhipar	Moderate
Dakhin Mohanpur V	Moderate
Dhanehari I	Moderate
Dhanehari Iii	Moderate
Didarkosh Grant	Moderate
Ganga Nagar Iii	Moderate
Kachudaram Pt. Iv	Moderate
Kaptanpur I	Moderate
Kaptanpur Ii	Moderate
Kaptanpur Xvii	Moderate
Kaptanpur Xviii	Moderate
Narsingpur Iv	Moderate
Nayagram	Moderate
Near Gram I	Moderate
Near Gram Ii	Moderate
Niz Rupai Bali	Moderate
Nutan Ramnagar Iii	Moderate
Rangirghat I	Moderate
Rukni Ii	Moderate
Singerbond Pt. I	Moderate

UDARBOND

Dayapur Part Iv	Very High
Durganagar Part Iii	Very High
Durganagar Part Iv	Very High
Durganagar Part Vii	Very High
Gossaipur Part I	Very High
Gossaipur Part Iii	Very High
Gossaipur Part Ii	Moderate
Nayagram	Moderate

Charaideo District

MAHMORA

Dakhin Barpathar	Very High
Khargharia Deodhar	Very High
Moranjan	Very High
Moudumuni	Very High
Torani F.v.	High
Barpathar Gaon	Moderate
Buragohainbari	Moderate
Daba Grant	Moderate
Garakochhabi	Moderate
Hatibarua	Moderate
Hatimara Pathar	Moderate
Jajali Gaon	Moderate
Jajalihabi	Moderate
Kacharibam Pathar	Moderate
Kakatybari Habi	Moderate
Pahuchungi Gaon	Moderate
Rangsual Pathar	Moderate
Sarupathar No.2	Moderate

NAZIRA_CHARAIDEO

Bakupukhurihabi No.4	Moderate

SAPEKHATI

Dhanekhana Habi Grant	High
Michajan	High
Rahan Pathar No.2	High
Sapekhati Rly. Station	High

Charaideo District

Barhat Habi Gaon	Moderate
Nahar Pukhuri Khowar	Moderate
Pub Nalbari	Moderate

SONARI_CHARAIDEO

Bahbari Pathar	Moderate
Handigue Gaon	Moderate
Lakhan Pathar Habi	Moderate
Mathurapur Jungle	Moderate
Rajabari Gaon	Moderate
Sarupathar Gaon	Moderate
Solal Gaon	Moderate

Chirang

BIJNI

Baldi No.2	Very High
Charpet No.1	Very High
Khajrabguri No.2	Very High
Narayanpur	Very High
Patalmari	Very High
Pub Amguri	Very High
Pub Baldi	Very High
Tangbari No.2	Very High
Uttar Baldi No.1	Very High
Durgapur	High
Odalguri	High
Bhatipara	Moderate
Chotolao Gaon No.2	Moderate
Faguna Gaon No.2	Moderate

FOREST AREA

Malibhita F.v.	Very High
Amtekatangga F.v.	High

Darrang District

DALGAON

Bagaribari N.c.	Very High
Gadhowa Chapari	Very High
Gadhowa N.c.	Very High
Kumarpara	Very High
Barkhat	Moderate
Bihdia	Moderate
Chitalmari Chapari N.c.	Moderate
Dhansiri Kakh	Moderate
Keotchuba	Moderate
Magurmari N.c. No.2	Moderate
Mullapara No.1	Moderate
Nadipar	Moderate

MANGALDOI

Bangalpota Chapari	Very High
Bezpara No.1	Very High
Bherpari Chapari	Very High
Bhokelikanda Chapari	Very High
Bhokelimara	Very High
Borolakhaiti Chapari	Very High
Choto Nagaon	Very High
Dariapara	Very High
Dharia Khaity Chapari	Very High
Dosotani	Very High
Ganakpara	Very High
Kacharipara	Very High
Kharpori Cbapari	Very High
Kumarpara	Very High
Mongaldai Gaon	Very High
Niz Rangamati	Very High
Bezpara	High
Ahoka	Moderate
Bezpara No.2	Moderate

Darrang District

Borachuba	Moderate
Dekargaon	Moderate
Ghatarag Chapari	Moderate
Kamarchuba	Moderate
Monitari	Moderate
Ruparikash	Moderate

PATHORIGHAT

Chamukhudol	Very High
Chengapara No.2	Very High
Durduriapara	Very High
Kharkhowapara	Very High
Kumarpara	Very High
Naodingadal	Very High
Patidarang	Very High
Baghmara Pukhuri	High
Muslimghopa	High
Chakarmukh	Moderate
Haripur	Moderate
Jayantipur	Moderate

PUB- MANGALDAI CIRCLE

Nangelichar No.1	Very High
Nangelichar No.2	Very High
Nangelichar No.3	Very High
Nangelichar No.4	Very High
No 1 Gadhowa	Very High
Kacharibari	High
Rowmari Chapari	High
Barkhat	Moderate
Chereng Chapari N.c. No.2	Moderate
Dhansiri Kakh	Moderate
Islampur	Moderate
Kachichar	Moderate
Keotchuba	Moderate
Kharupetia	Moderate
Magurmari . No.2	Moderate
Magurmari N.c. No.1	Moderate
Pub Chuba	Moderate

RIVER BRAHMAPUTRA

Chawlkhowa Chapari	Very High

SIPAJHAR

Chutiakatadol	Very High
Dakhin Kurua Chapari	Very High
Dhalpur1, Dhalpur2, Dhalpur3	Very High
Ganakbari	Very High
Khalihai Pathar	Very High
Khatur Pathar	Very High
Kuarizan	Very High
Kurua Chapari	Very High
Mahariardal	Very High
Niz Sipajhar	Very High
Pachim Kurua	Very High
Phuhuratali N.c.	Very High
Sanoatari	Very High
Solmara	Very High
Sonowagaon	Very High
Upar Kurua	Very High
Bamon Pathar	High
Bherveri	High
Bhotardol	High
Bijulibari	High
Chalardol	High
Gandhia Pathar	High

Darrang District

Hatimuria	High
Hetemtola	High
Kanidol	High
Khalihai Gaon	High
Khanapara No.1	High
Kurua Chapari N.c.	High
Niz Salmara	High
Puniagaon	High
Singiamari	High
Suktaguri Pathar	High
Swetmoder	High
Tekeliakur Grant	High
Bheheni Chapari	Moderate
Dumuni Chowki	Moderate
Khanapara No.2	Moderate
Kuarigaon	Moderate
Kurua N.c.	Moderate
Malibari	Moderate
Naljahi	Moderate
Narikali	Moderate
Pachim Chuburi	Moderate
Pakabangi	Moderate
Satkhali	Moderate

Dhemaji District

DHEMAJI	
Bhamuraguri Block No.1	Very High
Bhehpara Gaon	Very High
Jamukani Gaon	Very High
Jorkota Koch	Very High
Kaitong No.4	Very High
Kapahowa Pathar	Very High
Koaphala Gaon	Very High
Phatihabam No.1	Very High
Rajabari Gaon	Very High
Solomora Gaon	Very High
Batoamukhmuri	High
Bhereki Chuke	High
Chengamari Gaon	High
Domkota Miri	High
Jorkota Ahom	High
Kholihamari Nepali	High
Kholihamari Solmari	High
Koaphalahabi	High
Laguabara Gaon	High
Shingia Pathar	High
Solomora N.c.	High
Bakal Gaon	Moderate
Bali Gaon No.1	Moderate
Banglamari Gaon	Moderate
Bhehpara Nopam	Moderate
Bihdia N.c.	Moderate
Boradhakat	Moderate
Buti Kur	Moderate
Chakala Dhalani	Moderate
Chawria Gaon	Moderate
Dakhin Jorkota	Moderate
Deori Gaon	Moderate
Garaimari Pathar	Moderate
Gheari Gaon	Moderate
Ghila Guri Gaon	Moderate
Goraimari Gaon	Moderate
Goriajan Gaon	Moderate
Haitha Pathar	Moderate
Jamuguri Gohain	Moderate
Jiadhai Miri Pathar	Moderate
Jorkota Bongali	Moderate

Dhemaji District

Kachari Pathar	Moderate
Kalakara Block	Moderate
Kari Chuk Miri Pathar	Moderate
Kawaimari Block	Moderate
Khalihamari N.c.	Moderate
Kholihamari Gaon	Moderate
Lorachu	Moderate
Nagakhelia Gaon	Moderate
Napam Gaon	Moderate
Pavamari Pather	Moderate
Phatihabam No.2	Moderate
Takjuri No.4	Moderate
Takjuri No.5	Moderate
SISIBARGAON	
Banglamari Miri Gaon	Very High
Belong Chahaki Chuke	Very High
Bhangidia Gaon No.2	Very High
Burihuti Khuti	Very High
Sirikali Block	Very High
Amguri Block No.2	High
Amlakhi Pait No.1	High
Barchapari	High
Chengajan N.c.	High
Damkata Block No.2	High
Namgharia No.2	High
Sitalmari Gaon	High
Abar Ali	Moderate
Amlakhi Jatia No.2	Moderate
Aranya Chapari	Moderate
Balijan N.c.	Moderate
Barselek Gaon	Moderate
Bhangidia Gaon No.1	Moderate
Bhangidia Pathar	Moderate
Bhekeliranagari	Moderate
Bhereki Kasamari	Moderate
Borgayan Deori No.4	Moderate
Chekaibali Napam	Moderate
Chekaimukh Barghuli	Moderate
Chkaimaj Gaon No.1	Moderate
Chkaimaj Gaon No.1	Moderate
Chungamia	Moderate
Dambuk Kalabari	Moderate
Deori Gaon	Moderate
Deorighat No.1	Moderate
Dhunaguri Gaon	Moderate
Dighalidevera	Moderate
Kathalguri	Moderate
Kebaranga	Moderate
Kulajan Pather	Moderate
Laramkhuti	Moderate
Muktiar Kherkata No.3	Moderate
Namgharia No.1	Moderate
Piyang Gaon	Moderate
Punai	Moderate
Singibil	Moderate
Sonarighat No.1	Moderate
Sonarighat No.2	Moderate
Tangani Majgaon No.1	Moderate
Tangani Majgaon No.2	Moderate
Udmara Biock No.1	Moderate
Udmara Dighali	Moderate
Udmara Gaon	Moderate
GOGAMUKH	
Adut Miri	High
Kalyam	High
Bahaktika Pathar	Moderate
Berbhonga	Moderate
Boraguri	Moderate
Chutiakari	Moderate
Goimari Banguli	Moderate
Majgaon	Moderate
Padumoni	Moderate

Dhubri District

Agamoni Rev Circle	
Kaimari Part Vi	Moderate
Athani Rev Circle	
Bherakhowa	Very High
Bondihona	Very High
Boyjer Alga Part I	Very High
Boyjer Alga Part X	Very High
Boyjer Alga Part Xi	Very High
Chirakhowa Part Iv	Very High
Choudhurir Char Part Ii	Very High
Choutara	Very High
Dimatola Payastir Char	Very High
Fakirer Char	Very High
Fulkatari	Very High
Jhapurchar N.C.	Very High
Katlamari Part I	Very High
Katlamari Part Ii	Very High
Katlamari Part Iii	Very High
Katlamari Part Iv	Very High
Rangamati Part I	Very High
Rangamati Part Ii	Very High
Rangamati Part Iii	Very High
River Block No.3 N.C.	Very High
River Block No.4 N.C.	Very High
River Block No.5 N.C.	Very High
Salmara Part Iv	Very High
Tangbhita Kathalmari Part I	Very High
Tangbhita Kathalmari Part Ii	Very High
Tangbhita Kathalmari Part Iii	Very High
Bagulamari Part I	High
Bagulamarl Part Ii	High
Chirakhowa Part V	High
Choudhurir Char Part I	High
Dalaner Alga Part I	High
Dalaner Alga Part Ii	High
Fasatpur	High
Gutipara Part Vii	High
Kaunbari	High
Patkata Part Ii	High
Sadhubhasa Part Ii	High
Salmara Part Vi	High
Salmara Part Vii	High
Sand Block	High
Baniamari Part Vii	Moderate
Baniamari Part Viii	Moderate
Chirakhowa Part Ii	Moderate
Dimatola Part I	Moderate
Gutipara Part Ii	Moderate
Gutipara Part Iv	Moderate
Gutipara Part V	Moderate
Guttipara Part Vi	Moderate
Jaharmura	Moderate
Jhilturchar Part Iii	Moderate
Jhornarchar Part I	Moderate
Jhornarchar Part Ii	Moderate
Khanabari Punenyani	Moderate
Machipara Part I	Moderate
Machipara Part Ii	Moderate

Dhubri District

Naichardhap	Moderate
Patkata Part Iii	Moderate
Piazbari Part I	Moderate
Piazbari Part Ii	Moderate
Sadhubhasa No.2	Moderate
Sadhubhasa Part Iii	Moderate
Sadhubhasa Part Iv	Moderate
Salmara Part Ii	Moderate
Salmara Part Viii	Moderate
Shiber Alga	Moderate
BILASIPARA REV CIRCLE	
Gourangtari Pt-I	Very High
Hakama Pt-I (Town)	Very High
Hakama Pt-Ii (T)	Very High
Hakama Pt-V (Town)	Very High
Kadomtola Pt-Ii	Very High
Pasuarkhal Pt-Ii	Very High
Sagunmari Pt-Ii	Very High
Suapata Pt-I	Very High
Suapata Pt-Ii	Very High
Bangalipara Part Ii	Very High
Boalkamuri Part I	Very High
Boalkamuri Part Iii	Very High
Dubachuri Part I	Very High
Dubachuri Part Ii	Very High
Lutapara	Very High
Maspara	High
Pakrirtal.	High
Andurjhar Part Ii	High
Baghmari	High
Baghmari	High
Boalkamuri Part Ii	High
Gutipara Part I	High
Kurshakati	High
Kurshakati	High
Gopigaon Pt-I	Moderate
Gopigaon Pt-Ii	Moderate
Haldibari Pt-I	Moderate
Jhelturchar Pt-I	Moderate
Jhelturchar Pt-Ii	Moderate
Kajaikata Pt-I	Moderate
Kajaikata Pt-Ii	Moderate
Kajaikata Pt-V	Moderate
Nayeralga Pt- Iii	Moderate
Noyapara	Moderate
Paikandara Pt-Ii	Moderate
Pasuarkhal Pt-Iii	Moderate
Sagunmari Pt-I	Moderate
Sasargaon Pt-I	Moderate
Suapata Pt-Iii	Moderate
Suapata Pt-Iv	Moderate
Suapata Pt-V	Moderate
Hazaripara	Moderate
Helaguri	Moderate
Singimari	Moderate
Sukratari	Moderate
Chapar Rev Circle	
Aklapara	Very High
Arearjhar Pt-Ii	Very High
Arearjhar Pt-Iii(Town)	Very High
Velupara Pt-I	Very High
Velupara Pt-Ii	Very High
Baniapara Part Ii	Very High
Bholapara	Very High
Charua Bakhra Jangal Block	Very High
Dawaguri	Very High
Dhireschar Part Ii	Very High
Falimari	Very High
Gaurangtari Part I	Very High
Gerabhita	Very High
Harkata Hindupara	Very High
Hatipota Part I	Very High
Jogipara	Very High
Kamardhi Part I	Very High
Khamarpara	Very High
Kumrigaon	Very High
Majhergaon	Very High
Nunmati Part I	Very High
Parsanpara	Very High
Santoshpur	Very High
Simlabari Part I	Very High
Simlabari Part Ii	Very High
Simlabari Part Iii	Very High
Simlabari Part Iv	Very High
Botordol	High
Hapapara Part Ii	High
Islamari	High
Kashipara	High
Kurshakati	High
Salkapara	High
Salkocha	High
Sreergram Part Iv	High
Balkerkhal	Moderate
Barunitara Part I	Moderate
Sastapara	Moderate
Bamunpara	Moderate
Baniapara Part I	Moderate
Hapapara Part I	Moderate
Harkata Musalmanpara	Moderate
Kajipara Part Ii	Moderate
Kamar Para	Moderate
Pukhuripara Part I	Moderate
Samraipara	Moderate
Sreergram Part I	Moderate
Tarangapur Part I	Moderate
DHUBRI REV CIRCLE	
Adabari Part I	Very High
Airanjangla Part I	Very High
Aminer Char	Very High
Aranya	Very High
Baldiar Alga N.C.2	Very High
Barbila Part I	Very High
Barbila Part Ii	Very High
Beguatoli	Very High
Bhasanir Char Parr Ii	Very High
Bhedlo	Very High
Bhogdahar	Very High
Chalakura Part Ii	Very High
Chalakura Part Iii	Very High
Dharmasala Part Ii	Very High
Dharmasala Part Iii	Very High
Digaltari Part Ii	Very High
Dighaltari Part I	Very High
Falimari Part I	Very High
Falimari Part Ii	Very High
Fulkakata Part Ii	Very High
Gaspara	Very High
Janglia	Very High
Jhagra Part Iii	Very High
Jhagra Part Iv	Very High
Kachur Khash Part I	Very High
Kachur Khash Part Ii	Very High
Kachur Khash Part Iii	Very High
Kaimbhasani Part I	Very High
Kaimbhasani Part Ii	Very High
Kalapakani Part I	Very High
Kalapakani Part Ii	Very High
Khalilpur	Very High
Kismat Hasdaha Part Iii	Very High
Kismat Hasdaha Part Iv	Very High
Kuntir Char Part Ii	Very High
Majharcharchalakura	Very High
Mantirchar	Very High
Patamari	Very High
Payastichalakura	Very High
River Block No.10 N.C.	Very High
Rowa Part I	Very High
Rowa Part Ii	Very High
Rowa Part Iii	Very High
Sasterghat Part I	Very High
Sasterghat Part Ii	Very High
Silghagri Part Ii	Very High
Singimari Part I	Very High
Takimari	Very High
Tharigrambhita	Very High
Chagalchara Part Ii	High
Dubir Char	High
Kumargati	High
Kuntir Char Part I	High
Majer Char	High
Adabari Part Ii	Moderate
Airanjangla Part Ii	Moderate
Baladoba Part I	Moderate
Bidyarara Part Ii	Moderate
Dubirpar	Moderate
Durahati	Moderate
Gheumari	Moderate
Jhagra Part I	Moderate
Kismat Hasdaha Part I	Moderate
Silghagri Part I	Moderate
Singimari Part Ii	Moderate
Tistarpar	Moderate
GAURIPUR REV CIRCLE	
Alamganj Part Ii	Very High
Alamganj Part Ix	Very High
Baraibari Part Ii	Very High
Burirmari	Very High
Charal Danga	Very High
Debattar Hasdaha Part Vi	Very High
Dhakabil	Very High
Dumar Daha Part I	Very High
Fulkumari	Very High
Gauripur Town Part-1	Very High
Geramari Part I	Very High
Geramari Part Ii	Very High
Geramari Part Iii	Very High
Gheger Alga Pt-I	Very High
Lalmaniralga	Very High
Madaikhali	Very High
Madhusolmari Part I	Very High
Matiabag	Very High
Sajuarkuti	Very High
Shyam Charan Kuti Part I	Very High
Shyam Charan Kuti Part Ii	Very High
Shyamcharanerkuti Pt-Iii	Very High
Silairpar Part I	Very High
Tiamari Part Ii	Very High
Baghmara	High

Dhubri District

Bhaispuri	High
Brahmattar Silairpar	High
Chapgarh Part I	High
Dalsinger Alga Part I	High
Darchowka Part I	High
Debattar Hasdaha Part Ii	High
Gheger Alga Pt-Ii	High
Jhaler Alga Part I	High
Jhaler Alga Part Ii	High
Ashari Kandi	Moderate
Baraibari Part V	Moderate
Dalsinger Alga Part Ii	Moderate
Dangir Char	Moderate
Debttar Hasdaha Part I	Moderate
Dumar Daha Part Ii	Moderate
Dumar Daha Part Iii	Moderate
Geramari Part Iv	Moderate
Geramari Part V	Moderate
Khudimari Part I	Moderate
Khudimari Part Ii	Moderate
Sateralga	Moderate
GOLAKGANJ REV CIRCLE	
Berbhangi Part Iii	High
Bhogdana	Moderate
Dakhin Raipur Part Ii	Moderate
Dakhin Tokrer Chara Part I	Moderate
Lakhimari Part Ii	Moderate
Otherband	Moderate
Pub Gaikhowa Part I	Moderate
Soulmari Part Ii	Moderate
Uttar Raipur Part Ii	Moderate
SOUTH SALMARA	
River Block Nc 2	Very High
Aminer Char	Very High
Antarvita Nc	Very High
Arimari	Very High
Assamer Alga	Very High
Bamundanga	Very High
Bamunirpar	Very High
Bawluri	Very High
Berabhangar Char Pt I	Very High
Berabhangar Char Pt Ii	Very High
Berabhangar Char Pt Iii	Very High
Berabhangar Char Pt Iv	Very High
Berur Jhar	Very High
Bhakuwamari	Very High
Bhelakoba Nc	Very High
Birshing Part 1	Very High
Birshing Part 2	Very High
Birshing Part 3	Very High
Birshing Shialmari	Very High
Bolodmara(Joypur)	Very High
Borbhita	Very High
Borkalia Shershaw	Very High
Borkolia Part 1	Very High
Borkolia Part 2	Very High
Boro Ravatary Part I	Very High
Boro Ravatary Part Ii	Very High
Boushkata Part I	Very High
Boushkata Part Ii	Very High
Boushkata Part Iii	Very High
Boushkata Part Iv	Very High
Boushkata Part V	Very High
Boushkata Part Vi	Very High
Boushkata Part Vii	Very High
Chirakuti	Very High
Chokir Char	Very High
Choriagram	Very High
Chotokolia Part 1	Very High
Chotokolia Part 3	Very High
Darogar Alga Nc	Very High
Dewari Khola	Very High
Gunaipani	Very High
Khamari	Very High
Kumori	Very High
Phulgocha	Very High
Chirakuta Chatapara	High
Kashiyar Tari	High
Paikarpara	High
Parowa	High
Rauthmara	High
Tarangajhar	High
Beldubi	Moderate
Borkalia Chatlarpar	Moderate
Borkalia Goladighi	Moderate
Borkalia Nashkora	Moderate
Borkalia Surjyomani	Moderate
Char Kathdanga Part I	Moderate
Ding Dinga	Moderate
Doriyarpar Maijuli	Moderate
Dudhtola	Moderate
Godayer Vita	Moderate
Jamadarpara	Moderate
Kulamua Chotonisimpur	Moderate
Mathakata Banachapa	Moderate
Medobill	Moderate
Moirakuchi Part 1	Moderate
Narowamari Nc	Moderate
Poddarvita	Moderate
Porarvita	Moderate
Sundarpara Part 3	Moderate

Goalpara District

BALIJANA	
Bangal Jhar	Very High
Chakla Gaon	Very High
Chataimari	Very High
Chinabari	Very High
Dariarpar	Very High
Dariduri	Very High
Garo Bhat Khowa	Very High
Gobindapur	Very High
Hajuar Char Part I	Very High
Hajuar Char Part Ii	Very High
Hajuar Char Part Iii	Very High
Halongarchar	Very High
Makri	Very High
Pakhrirtari	Very High
Panduva	Very High
Ram Harirchar Part Ii	Very High
River Block No.3 N.c.	Very High
Thatkur Bhita	Very High
Tiapara	Very High
Abrarbhita	High
Arabandha	High
Ballapuri	High
Barjhar	High
Bhashanipara Part Iii	High
Boro Boguan	High
Chunari Suta	High
Dewli Etara	High
Dhumbandha	High
Gendauri	High

Goalpara District

Gosai Gadhowa	High
Kaladunga	High
Kalpani Chandamari	High
Katiamari	High
Khaiartari	High
Nachimipara	High
Naranga Bari	High
Polashbari	High
Pub-kangaipar	High
Ram Harirchar Part Iii	High
Saplengkata	High
Silchak Damal	High
Simlabari	High
Subaji Baguan	High
Tisimpur	High
Ambari	Moderate
Baikunthapur	Moderate
Barbhita	Moderate
Batabari	Moderate
Birsing Halangar Char Part Ii Rb I	Moderate
Choto Boguan	Moderate
Ketekibari	Moderate
Kishori Dubi	Moderate
Markula	Moderate
Murali Jhar	Moderate
Pachim Kawgipar	Moderate
Rampur	Moderate
Soulmari	Moderate
Soulmari	Moderate
DUDHNOI	
Baniapara	Moderate
Barpathar	Moderate
Lakheraj Mandal Gram Part I	Moderate
Patiarpara Part I	Moderate
LAKHIPUR	
Balikachi Mosalmanpara (muslimpara)	Very High
Bancha Duba	Very High
Bandar Matha	Very High
Banyaguri	Very High
Bapurbhita Part I	Very High
Bapurbhita Part Ii	Very High
Bapurbhita Part Iii	Very High
Bardal	Very High
Basmura	Very High
Batabari	Very High
Besorkona	Very High
Bhalukmari	Very High
Boistompara	Very High
Boro Poitari	Very High
Boro Tang Bhita	Very High
Bororchar Part I	Very High
Bororchar Part Ii	Very High
Boroudmari	Very High
Chataimari	Very High
Chenger Alga	Very High
Chilar Bhita	Very High
Chitolmari Part I	Very High
Cholakura Part I	Very High
Cholakura Part Ii	Very High
Cholakura Part Iii	Very High
Choto Udmari	Very High
Chowkatola	Very High
Chowlar Char	Very High
Chunari Char	Very High
Dapkar Bhita	Very High

Goalpara District

Dhamar Reserve	Very High
Garojan	Very High
Geramari	Very High
Geramari Part Ii	Very High
Gerapara	Very High
Ghunimari River Block 1 N.c.	Very High
Ghunimari River Block 2 N.c.	Very High
Goloker Pam	Very High
Gowail Bhita	Very High
Haguripura	Very High
Haldibari No.1	Very High
Hatisila Ravapara	Very High
Hatogaon Part I	Very High
Hatogaon Part Ii	Very High
Jamirabari Algachar Part I	Very High
Jamirabari Algachar Part Ii	Very High
Jamirabari Algachar Part Iii	Very High
Jamirabari Algachar Part Iv	Very High
Jamirabari Part I	Very High
Jamirabari Part Ii	Very High
Kadamtola River Block N.c.	Very High
Kajipota	Very High
Kalir Alga	Very High
Kaminir Bhita	Very High
Karaibari	Very High
Katlamari	Very High
Khakopara	Very High
Khalisa Bhita Hindupara	Very High
Khalisa Bhita Muslimpara	Very High
Khalisamari No.2	Very High
Kher Doba	Very High
Kistomani Part I	Very High
Kistomani Part Ii	Very High
Kistomani Part Iii	Very High
Korea	Very High
Magho Part Ii	Very High
Marishbari Reserve	Very High
Medhipara Part Ii	Very High
Niz Bahadurtari	Very High
Niz Bulikachi	Very High
Patantipi	Very High
Rakhal Killa	Very High
Rowkhowa Part I	Very High
Rowkhowa Part Ii	Very High
Rowkhowa Part Iii	Very High
Rowkhowa Part Iv	Very High
Sal Dhowa	Very High
Salmara	Very High
Satabari Part I	Very High
Satsia Khamar	Very High
Sonalurtol	Very High
Thailapara Part I	Very High
Thailapara Part Ii	Very High
Thongpara	Very High
Tulsi Bari	Very High
Ververi	Very High
Bamuner Alga Part I	High
Bamuner Alga Part Ii	High
Bamuner Alga Part Iii	High
Bamuner Alga Part Iv	High
Boalmari	High
Chakla Beel	High
Ghoguduba	High
Kalabari	High
Kaltapur	High

Kasima	High
Khonar Pubpar	High
Killahara Part I	High
Killahara Part Iii	High
Killahara Part Iv	High
Kursakati	High
Mothabari	High
Pathakata Part I	High
Pathakata Part Ii	High
Saildhara	High
Septibari	High
Simlabari	High
Singulipara Killahara Part I	High
Singulipara Killahara Part Ii	High
Singulipara Killahara Part Iii	High
Singulipara Part I	High
Singulipara Part Ii	High
Singulipara Part Iii	High
Aolatoli	Moderate
Bhoismari	Moderate
Dambari	Moderate
Dharai	Moderate
Eklasal Bari	Moderate
Faringa Para	Moderate
Fulkakata	Moderate
Haldibari No.2	Moderate
Jaleswar Beel	Moderate
Jaybhum	Moderate
Kadamtola	Moderate
Koimari	Moderate
Lakhipur Town	Moderate
Lezam	Moderate
Likiripara	Moderate
Manashpara	Moderate
Manashpara Reserve	Moderate
Medhipara Part I	Moderate
Niz Kursakati	Moderate
Puthimari	Moderate
Rajmita Pantai	Moderate
Sialkanda	Moderate
Silapani	Moderate
Simulkandi	Moderate
Sulkani (para)	Moderate
Takimari Grassing Reserve	Moderate
Uttar Satvendi	Moderate
MATIA	
Baguan Part I	Very High
Baguan Part Ii	Very High
Bahati Part I	Very High
Bahati Part Ii	Very High
Baladmari Char Part I	Very High
Baladmari Char Part Iii	Very High
Baladmari Char Part Iv	Very High
Bherbheri	Very High
Dekdhowa Char N.c.	Very High
Dubapara Luptachar	Very High
Fafanga Part Iii	Very High
Garomari	Very High
Garupura Tari	Very High
Gosaibari	Very High
Kadamtola Gopalpur	Very High
Karipara Part Ii	Very High
Khagrabari	Very High
Mamudpur Part I	Very High
Marnoi	Very High
Moijonga	Very High
Nabagata Simljtola	Very High

Nayapara Part Ii	Very High
Pokalagi	Very High
Toplakhowa	Very High
Tukura Part I	Very High
Bahati River Block N.c. Part Ii	High
Basantpur	High
Basantpur N.c.	High
Bhelakamar	High
Bhojmala Part I	High
Buduchar N.c.	High
Daragar Alga	High
Kalia Satra	High
Khamar Manikpur	High
Nabagata Simliola N.c. Part Ii	High
Pakhiura Char	High
Tukura Part Ii	High
Bahati N.c.	Moderate
Bahati River Block N.c. Part I	Moderate
Baladmari Char Part Ii	Moderate
Balapara	Moderate
Balapara Sutarpara N.c.	Moderate
Barbhita	Moderate
Buduchar	Moderate
Dahela	Moderate
Dhai Gaon Damas	Moderate
Guabari	Moderate
Hela Pakhri	Moderate
Jatsarabdi	Moderate
Karipara Part I	Moderate
Karkachi	Moderate
Karkachi Damas	Moderate
Khamar Pakhriguri Dhundipara	Moderate
Mujkeri Islampur	Moderate
Mujkuri	Moderate
Pakhiura N.c.	Moderate
Singijani	Moderate
Singimari	Moderate
Singramar	Moderate
Singramari River Block N.c.	Moderate
Sutapara	Moderate
RANGJULI	
Allibari	Very High
Bangaon	Very High
Bijayapur Bangaon	Very High
Domapara	Very High
Ganesh Pahar	Very High
Garo Chatka Part Ii	Very High
Kahibari Part I	Very High
Kamar Pota	Very High
Kankata Part I	Very High
Kankata Part Ii	Very High
Sikajuli Ghagra Moamari	Very High
Sikajuli Kuhiarbari	Very High
Tiplai Part Iii	Very High
Ulubari Chantara Naitara Beel	Very High
Ambari Part Ii	Moderate
Bamuni Gaon Part I	Moderate
Budlung Garopara	Moderate
Dhantala Part I	Moderate
Jogipara Part Ii	Moderate
Maslam Part Ii	Moderate
Ouguri	Moderate

Golaghat District

BOKAKHAT	
Bahumari Gaon	Very High
Bhalukaguri	Very High
Bilotia	Very High
Bortika	Very High
Chowguri Chapori	Very High
Dhanbari F.v.	Very High
Dhansiri Temera	Very High
Diffoloo Pathar	Very High
Dihingia	Very High
Garaimari	Very High
Hahchora	Very High
Japoripathar	Very High
Mohpara Pathar	Very High
Nikori	Very High
Radhabari T.e.	Very High
Ageratoli	High
Bamungaon N.c.	High
Barai Khowa Chapori	High
Belguri	High
Bezgaon	High
Bilotia Gaon	High
Brahmaputra River	High
Budhbari	High
Domjan No.2	High
Jogania Ati	High
Jogigaon	High
Kandhulimari	High
Kohra No.2	High
Kumarani Pathar	High
Majdolapa	High
Mariahola	High
Namtemera	High
Nepalikhuti	High
Nowbhangi	High
Palashguri	High
Sildubi No.1	High
Sildubi No.2	High
Ahomgaon	Moderate
Bhauntkhuti F.v.	Moderate
Bohikhowa	Moderate
Bonkual	Moderate
Borbali	Moderate
Borpak	Moderate
Dafalada	Moderate
Dighali Ati	Moderate
Domjan No.1	Moderate
Halowa N.c. (bagorijuri)	Moderate
Kakojuri	Moderate
Kamargaon	Moderate
Kuruabahi Satra	Moderate
Kuruabahigaon	Moderate
Lukhura Khonia	Moderate
Methoni T.e.	Moderate
Parangania Ati No.1	Moderate
Parangania Ati No.2	Moderate
Siljuri Kakajuri	Moderate
Tamulipathar	Moderate

DER GAON	
Hahpani Gaon	Very High
Uttar Dalijalia	Very High
Bongalgaon	High
Dayangingual Gaon	High
Sngchowa Grant	High
Bilotia Kaivarta	Moderate
Dhemaji Kaivarta	Moderate
Hatigarh T.e.	Moderate
Sital Pathar Habi	Moderate

JORHAT WEST	
Goria Chapari	Moderate

MORONGI	
Hahchora	Very High
Dhuliagaon	High
Kaibarta No.3	High
Dusutimukh	Moderate
Rangajan T.e. (1)	Moderate
Salmoramohkhuti	Moderate
Thurajan Bagan	Moderate

KHUMTAI	
Afala	Very High
Likson Chapori	Very High
Rangagora Chapori	Very High
Rangagora Gaon	Very High
Thengal Gaon	Very High
Bakhat Chapori No.2	High
Bhakat Chapori No.1	High
Borahi Gaon	High
Pathori Miri No.1	High
Tikirai Chapori	High
Tinichuki Chapori	High
Badulipara T.e.	Moderate
Bakuli Chapori No.1	Moderate
Bakuli Chapori No.2	Moderate
Habigaon	Moderate
Missimi Ati	Moderate
Opar Temera	Moderate

SARUPATHAR	
Bardubi	Very High
Chukia Pathar	Very High
Gandhakorai No.1	Very High
Nimati Tangla F.v.	Very High
Parghat No.2	Very High
Premhara No.2	Very High
Rengmai	Very High
Sarupathar	Very High
Sarupathar Town	Very High
Tengabari	Very High
Tengaholla No.1	Very High
Tengrajan No.1	Very High
Kharua	High
Lotajuri	High
Nalani Pathar	High
Premhara No.1	High
Betonijan	Moderate
Borbali	Moderate
Chatiani Pathar	Moderate
Gorgaon	Moderate
Nambar South Reserve Forest	Moderate

Hailakandi District

ALGAPUR	
Algapare I	Very High
Algapare Iii	Very High
Algepare Ii	Very High
Algepare V	Very High
Bakrihower Pt. I	Very High
Bakrihower Pt. Ii	Very High
Bakrihower Pt. Iv	Very High
Bakrihower Pt. Ix	Very High
Bakrihower Pt. V	Very High
Bakrihower Pt. Vi	Very High
Bakrihower Pt. Vii	Very High
Bakrihower Pt. Viii	Very High
Bakrihower Pt. X	Very High
Bakrihower Pt. Xi	Very High
Bakrihower Pt. Xii	Very High
Bashbari Ii	Very High
Bekrihower Pt. Iii	Very High
Bhatirkupa I	Very High
Bhatisanjurai	Very High
Chandipur Ii	Very High
Chandipur Iii	Very High
Chiparsongar Ii	Very High
Chiparsongar Iii	Very High
Kalinagar Pt. I	Very High
Kalinagar Pt. Iii	Very High
Kalinagar Pt. Iv	Very High
Kalinagar Pt. V	Very High
Kalinagar Pt. Vi	Very High
Kalinagar Pt. Vii	Very High
Mohonpur Iii	Very High
Mohonpur Iv	Very High
Narainpur I	Very High
Narainpur Ii	Very High
Nitainagar I	Very High
Nitainagar Ii	Very High
Padmarpar	Very High
Saidbond I	Very High
Saidbond Ii	Very High
Saidbond Iii	Very High
Salchapara Iii	Very High
Kalinagar	Moderate
Kalinagar Pt. Ii	Moderate
Mohonpur I	Moderate
Sripur Pt. Ii	Moderate

HAILAKANDI	
Bishnughar	Very High
Boalipar Iii	Very High
Brajapur I	Very High
Brajapur Ii	Very High
Chepti Brajapur	Very High
Dakhin Sonapur I	Very High
Itarkandi I	Very High
Itarkandi Ii	Very High
Kanchanpur I	Very High
Lakshirbond I	Very High
Narainpur I	Very High
Narainpur Ii	Very High
Narainpur Iv	Very High
Nitainagar Iii	Very High
Purba Sonapur	Very High
Ratanpur I	Very High
Ber-hailakandi I	High
Bilpardhumkar	High

Hailakandi District

Dakhin Sonapur Ii	High
Gangpardhumkar Iv	High
Paikan	High
Bhajantipur I	Moderate
Purbagool	Moderate

LALA

Chandrapur	Very High
Dudpur	Very High
Jalapur	Very High
Berband Ii	High
Berband Iii	High
Nischintapur Ii	High
Bishnupur	Moderate
Tantoo	Moderate

Hojai District

DOBOKA

Baliram Gaon	Very High
Barbali	Very High
Barjari Gaon	Very High
Bhedewati	Very High
Bhelewguri Pathar	Very High
Bhelewguri Pathar	Very High
Bherbheri	Very High
Dekerua	Very High
Jugjjan	Very High
Jungle Block	Very High
Kathkatia Bhakatgaon	Very High
Koroioni	Very High
Methigaon	Very High
Nagaya Pam	Very High
Nil Bagan	Very High
Pabijuri	Very High
Pachim Jarani	Very High
Pachim Nilbagan	Very High
Parakhowa	Very High
Patiapam Pathar	Very High
Patidaya	Very High
Pub Bandarmela	Very High
Pub Jamunagaon	Very High
Sibpur	Very High
Tarkata	Very High
Akchek Pathar	High
Bandarmela	High
Block 48	High
Borpukhuri	High
Kacharipara	High
Karaiguri	High
Pachim Samorali	High
Pub Rowarpar	High
Sadargaon	High
Saharan	High
Akchek Hatibandha	Moderate
Akchekgaon	Moderate
Ambari	Moderate
Bar Howar	Moderate
Burungatali	Moderate
Chandanpur	Moderate
Dakhin Debasthan	Moderate
Dakhin Sabajpur	Moderate
Dakhin Samorali	Moderate
Debasthan	Moderate
Dighalijar	Moderate
Ghaniarpar	Moderate
Hatikhuli	Moderate
Kapashbari	Moderate
Madhya Samorali	Moderate

Hojai District

Marjong Pathar	Moderate
Matikhola	Moderate
Mubarakbasti	Moderate
Padumpukhuri	Moderate
Pub Jarani	Moderate
Rowarpar	Moderate
Ruhinipathar	Moderate
Sarlok	Moderate
Singirpar	Moderate
Tarapur	Moderate
Tengatali	Moderate
Uttar Bandarmela	Moderate
Uttar Nowabil	Moderate

HOJAI

Ainagar	Very High
Amlipukhuri Gaon	Very High
Baliram Pathar	Very High
Baphuti	Very High
Barhola	Very High
Barpukhuri	Very High
Bhokhow Basti	Very High
Brajapur	Very High
Brajapur	Very High
Dabakanala	Very High
Dakhin Bhedewati	Very High
Daukipathar	Very High
Fakali	Very High
Fakira Basti	Very High
Fatehpur	Very High
Gopalnagar	Very High
Jugijan Gaon	Very High
Kachari Basti	Very High
Kathalpur	Very High
Mahparagaon	Very High
Pachim Bagariguri	Very High
Pachim Dhaniram Pathar	Very High
Pub Bagariguri	Very High
Pub Dhaniram Pathar	Very High
Pub Jugijan Gaon	Very High
Pub Salmarijan	Very High
Raja Pukhuri	Very High
Salmarijan	Very High
Sibpur	Very High
Sidheswarpur	Very High
Singari Basti	Very High
Telibasti	Very High
Thikadar Basti	Very High
Dakhin Komorakata No.iii	High
Dhanuhar Basti	High
Dighalbuli	High
Hawaipur	High
Radhanagar Nc	High
Amlipukhuri Reserve	Moderate
Bhimar Ali	Moderate
Bishnupur	Moderate
Dakhin Jamuhandal	Moderate
Dakhin Komorakata No.i	Moderate
Dakhin Komorakata No.ii	Moderate
Daria Basti	Moderate
Islampur	Moderate
Jamhandal	Moderate
Kandhulimari	Moderate
Matikhola	Moderate
Nabhanga	Moderate
Pachim Nandalalpur	Moderate
Pub Nabhanga	Moderate
Saotal Basti	Moderate
Tengeripar	Moderate
Udaipur	Moderate
Uttar Komorakata No.ii	Moderate
Warigedeng	Moderate

LANKA

Kandura	Very High
Dakhin Kandura	Very High
Lalungdubl	Very High
Padum Pukhuri	Very High
Sankarbasti	Very High
Aichinga	High
Ajarbari (paschim Angsa)	High
Ajarbari (paschim Angsa)	High
Buragaon	High
Pachim Bhalukmari	High
Pipalpukhuri No.1	High
Kaki Launggaon No.2	Moderate
Baluhandar	Moderate
Bonbengenaati	Moderate
Dagaon	Moderate
Kaki Lalunggaon	Moderate
Kaki Lalunggaon No.1	Moderate
Kaki Village 1 (block I)	Moderate
Kaki Village 8 (block I)	Moderate
Kakikacharigaon	Moderate
Kakikacharigaon	Moderate
Khring Khring	Moderate
Pachim Baluhandar	Moderate
Pamgaon	Moderate
Panch Bhandar Gaon	Moderate
Panchali No.1	Moderate

Jorhat District

MORIANI

Kankhowa Gaon	Very High
Borgayan Gaon	Moderate
Moutiulipather	Moderate

JORHAT EAST

Barhai Pam	Very High
Borborua Kuruka	Very High
Dakukurashowa	Very High
Dhekia Khowa	Very High
Hatichal Chapari	Very High
Kaibotra Salotdia	Very High
Khater Pathar	Very High
Khehuwani Bamun Gaon	Very High
Kumar Gaon	Very High
Phehumukoli	Very High
Phukonar Khat	Very High
Sonari Gaon	Very High
Bajar Chiga	High
Dharigaon	High
Setalbagh Chapari	High
Toramai Chapori	High
Alichiga Pathar	Moderate
Alichiga Pathar	Moderate
Bamun Gaon No.1	Moderate
Borpaik	Moderate
Chomoni Chapari	Moderate
Hizal Guri	Moderate
Kalioni Pathar	Moderate
Mohkhuti Pathar	Moderate
Nimati Chapari	Moderate
Tinikuria Dhekia Khowa	Moderate

JORHAT WEST

Borahom Kathani	Very High
Kumar Gaon	Very High
Pahumara No.2	Very High

Jorhat District	
Puranimati Satra	Very High
Sonari Gaon	Very High
Bookara	Moderate
Kuhiarbari	Moderate
Majiabheti	Moderate
Napamua Gaon	Moderate
Niz Baligaon	Moderate
TITABOR	
Abhoipuriagaon	Very High
Bagar Gaon	Very High
Birina Sayak	Very High
Bocha Gaon	Very High
Dewgharia Gaon	Very High
Ekorani	Very High
Kacharigaon	Very High
Kakatikuri	Very High
Kaupati Gaon	Very High
Kawrichuk	Very High
Kherema Kachari	Very High
Kumar Gaon	Very High
Mezenga T.e.	Very High
Moria Sayak	Very High
Rajabahar	Very High
Rajabari T.e.	Very High
Sodial Kachari	Very High
Sonari Gaon	Very High
Sonari Gaon	Very High
Tipomia Gaon	Very High
Toirakuri Gaon	Very High
Balijan	High
Kechabebejia Gaon	High
Nawpeta Gaon	High
Orongial Gaon	High
Barbamchungi Gaon	Moderate
Bokaholla Grant	Moderate
Bor-eragaon	Moderate
Chereli Gohain Gaon	Moderate
Christian Gaon	Moderate
Dangdhora Grant	Moderate
Dewgharia Grant	Moderate
Dewgharia Lokheraj	Moderate
Grant No.188	Moderate
Handique Gaon	Moderate
Hirajan T.e.	Moderate
Khorikotia Gaon	Moderate
Letekujan T.e.	Moderate
Mandal Gaon	Moderate
Mohimabari Gaon	Moderate
Nangal Gaon	Moderate
Potia Gaon	Moderate
Rongdoi T.e.	Moderate
Sukanjan Gaon	Moderate
Titabar Gaon	Moderate
Turang Gaon	Moderate
Kamrup metro District	
AZARA	
Barjhar	Very High
Mikirpara Chakardo	Very High
Upar Mirzapur	Very High
Kahikuchi	Moderate
CHANDRAPUR	
Bejeni Grant (mali Bagan)	Very High

Kamrup metro District	
Bejeni N.c. (dungdang)	Very High
Chandrapur Gaon	Very High
Chandrapur Grant	Very High
Dhipujijan Pam	Very High
Ghoramarajan Par	Very High
Gobardhon	Very High
Kharguli N.c.	Very High
Panikhati Gaon	Very High
Rajabari Grant	Very High
Thakurkuchi Gaon	Very High
Hajongbari N.c.	Moderate
Khankar N.c.	Moderate
GUWAHATI	
Dakhin Jhalukbari	Very High
Tetelia Gaon	Moderate
NORTH GUWAHATI	
Kalipahar	Very High
Agyathuri	Moderate
RIVER BRAHMAPUTRA	
Garal	Very High
SONAPUR	
Amara Pathar	Very High
Amara Pathar N.c.	Very High
Anjari No.1	Very High
Anjari No.2	Very High
Anjari No.3	Very High
Bagibari Pathar	Very High
Bargog N.c.	Very High
Dimoria Gaon	Very High
Durung Gaon	Very High
Gomaria Gaon	Very High
Helagog Gaon	Very High
Kachutali Pathar	Very High
Kendubam Gaon	Very High
Maloibari Gaon	Very High
Maloibari Jungle	Very High
Maloibari Pathar	Very High
Murkata Gaon	Very High
Niz Dimoria	Very High
Pub Maloibari	Very High
Rewa Pathar	Very High
Sakurabari	Very High
Salana Gaon	Very High
Tam Hallong	Very High
Teteliguri	Very High
Ulubam Gaon	Very High
Bejeni Gaon	High
Gomaria Pathar	High
Hahara Pathar	High
Uttar Dimoria	High
Chamata Pathar	Moderate
Dhangiri Gaon	Moderate
Dhipuji Pathar	Moderate
Domora Pathar	Moderate
Lumsum N.c.	Moderate
Maloibari N.c.	Moderate
Mitani N.c.	Moderate
Rewa N.c.	Moderate
Tetelia Gaon	Moderate

Kamrup rural District	
BARKHETRI	
Mohmarirdia	Very High
Rangadargaon	Very High
Nowaparapam	High
BOKO	
Alegjari	Very High
Khatala	Very High
Bhathipara No.3	High
Garbandha F.v.	High
Balapara	Moderate
Bhehua	Moderate
Dakhalari	Moderate
Makeli P.g.r.	Moderate
Medhipara	Moderate
CHAMARIA	
Jatiadia No.1	Very High
Jatiadia No.2	Very High
Karaitari Gaon	Very High
Kochiadia Pathar	Very High
Lotoria Bilor Pathar	Very High
Lotoria Gaon	Very High
Lutibari Gaon	Very High
Barua Pathar No.1	Very High
Barua Pathar No.2	Very High
Baruagaon	Very High
Chandragaon	Very High
Dakhin Rangapani N.c. No.2	Very High
Jawkata	Very High
Jawkatadia	Very High
Jugipara Gaon	Very High
Jugipara Pathar No.1	Very High
Jugipara Pathar No.2	Very High
Makeli No.1	Very High
Malibari Pathar	Very High
Malibari Satra	Very High
Mandira Pathar	Very High
Nichlamari Pathar	Very High
Nimurtari Gaon	Very High
Salmara Bilor Pathar	Very High
Simila	Very High
Bagariguri	High
Dakhin Rangapani No.3	High
Malibari Pathar No.1	High
Duramari	High
Chowdhuri Pam	Moderate
Dekachang	Moderate
Puthimari Pathar	Moderate
Uttar Ghalabari	Moderate
CHHAYGAON	
Dari	Very High
Dhelachar	Very High
Kaithpara	Very High
Poiranga	Very High
Bahjani	High
Bhathipara	High
Burasara	High
Khenapara	High
Nowahara	High
Choudhuri Khat	Moderate
Dakhin Bankakata	Moderate
Deliapara	Moderate
Tokradia	Moderate
GORAIMARI	
Achalpara Baghmaragaon	Very High
Alikash	Very High
Baghber Gohainpara	Very High

Kamrup rural District

Barakhat	Very High
Napara Kathalguri	Very High
Bhogedia No.2	Very High
Charalar Suti Ram	Very High
Chitalmari Pathar	Very High
Choudhuripara	Very High
Dekradiatup	Very High
Deuridaba	Very High
Dighaldoba Pathar	Very High
Duramari	Very High
Jahirpur	Very High
Kaladia	Very High
Kaladiatup	Very High
Kalatalia Pathar	Very High
Kalatalia Pathar	Very High
Khalihamari Tup	Very High
Khetrapara	Very High
Lohikata Para	Very High
Maghua Bilar Pathar	Very High
Major Tup	Very High
Naljuhi Pathar	Very High
Napara	Very High
Napara Kathalguri	Very High
Salmara Pathar	Very High
Tapar Pathar	Very High
Tekeliphuta Pathar	Very High
Ujandhuramarigaon	Very High
Chamaria Satra	Very High
Kahibari Pathar	Very High
Mohber Pathar	Very High
Sola Gaon	Very High
Haulitari Gaon	High
Barbhitha Kachari Gaon	High
Champu Para Pathar	Moderate
Deochar Gaon	Moderate
Hatipara	Moderate
Jambar No.1	Moderate
Kalohirkash	Moderate
Kharidal N.c.	Moderate
Laruajan	Moderate
Mergenda	Moderate
Mohgarh	Moderate
Pachgumi	Moderate
Sathihalugaon	Moderate
Sathisola Pam	Moderate
Singmarihabi	Moderate
Tamulai	Moderate
Trilochan	Moderate
Uttar Bangakatagaon	Moderate

GORESWAR

Lokra Barnagar	Moderate

HAJO

Ambari	Very High
Bagta No.3	Very High
Bagta No.4	Very High
Bamundi Ganakpara	Very High
Bhelkor No.1	Very High
Bhelkor No.2	Very High
Dokania No.1	Very High
Dokania Reserve No.1	Very High
Dokania Reserve No.2	Very High
Gendelitari	Very High
Halo Gaon No.1	Very High
Hardiapam	Very High
Hatimura N.c.	Very High
Khalihamari No.2	Very High
Khetri Hardia No.1	Very High
Niz Bongsor	Very High
Raja Bazar	Very High
Rakhyahini Sar	Very High
Rakhyahini Sar N.c. (b)	Very High
Satalabari	Very High
Sholmari No.1	Very High
Sholmari No.2	Very High
Soalkuchi Pathar	Very High
Sri Hati No.2	Very High
Subanshah No.1	Very High
Tapabari	Very High
Bangal Para	High
Bardampur	High
Barlah	High
Dali Bari No.1	High
Gandhmow No.2	High
Hahdia	High
Halo Gaon No.2	High
Hardia P.g.r.	High
Hatimura	High
Keotar Bari Pacharia	High
Khetri Hardia No.3	High
Kismat Bongsor No.2	High
Pacharia	High
Pacharia Dalor Pathar	High
Saktibari	High
Sanpara	High
Sarmajuli Gaon	High
Sarmajuli Pam	High
Sarudampur No.1	High
Sarudampur No.2	High
Sarulah	High
Singimari No.1	High
Sri Hati No.3	High
Subanshah No.4	High
Andkupara	Moderate
Bamundi	Moderate
Bangaltola	Moderate
Barni	Moderate
Barsutia	Moderate
Borbakra	Moderate
Brahmaputra River	Moderate
Chimina Gaon No.i	Moderate
Ganoburah Pam	Moderate
Hajo Barchapari	Moderate
Kulhati No.1	Moderate
Panditor Pma	Moderate
Saniadi	Moderate
Sanpara Grant	Moderate
Sanpara Parbat	Moderate
Sarubakra	Moderate
Sarusulia	Moderate
Sastar	Moderate
Sri Hati No.1	Moderate
Sualkuchi Town	Moderate

KAMALPUR

Sarikat	Very High
Alejari	High
Barhata	High
Boregaon	High
Borka	High
Marai	High
Tuhura	High
Joypur	High
Baredala	Moderate
Barkhat	Moderate
Barmara	Moderate
Dakhin Singara	Moderate
Dallong	Moderate
Digunpur	Moderate
Guimora Pathar	Moderate
Halda	Moderate
Karara	Moderate
Koreria	Moderate
Mandakata	Moderate
Nanara	Moderate
Paikana	Moderate
Pubpar Lokra	Moderate
Singarpara	Moderate
Soledol	Moderate
Tilkuchi	Moderate

KAYAN

Hurmabari	Very High
Gopalpur	High
Kumtibari	High
Dudlong	Moderate
Garpot	Moderate
Kayana	Moderate

NAGARBERA

Agarchar N.c.	Very High
Badlabilar Pathar	Very High
Dola Gaon	Very High
Habilagon	Very High
Jaljali P.g.r.	Very High
Jamlai N.c.	Very High
Jamle Gaon	Very High
Kalubari	Very High
Madhipara	Very High
Malancha	Very High
Mandira Pathar N.c.	Very High
Nagarbera	Very High
Naitor Gaon	Very High
Naitor Kalyanpur	Very High
Naitor Khamari	Very High
Palahartari	Very High
Pizupara	Very High
Rangeswari	Moderate
Sagunbahi Gaon	Moderate
Tupamari	Moderate
Uttar Rangapani N.c. No.1	Moderate

NORTH GUWAHATI

Data Not Available	Very High
Silbharal	Very High
Sindurighopa	High
Barnijar	Moderate
Bonamaje	Moderate
Changrihari	Moderate
Rudreswar	Moderate

PALASBARI

Balagaon No.1	Very High
Balagaon No.2	Very High
Charimari	Very High
Kajalartari Pam	Very High
Kaladia	Very High
Mallartari	Very High
Phuturi No.2	Very High
Phuturi No.3	Very High
Bangara	Very High
Dagaon Katahi	Very High
Dahajatia	Very High
Deorali	Very High
Dhantola Rangamati	Very High
Gatua	Very High
Haropara	Very High

Kamrup rural District	
Kokjhar	Very High
Makeli	Very High
Nalgaon	Very High
Rampur I	Very High
Rampur Ii	Very High
Satpakhali	Very High
Sikarhati	Very High
Amtala Gaon	High
Hatimura	High
Jolnamdani	High
Kaita Sidhi	High
Lochana	High
Baghardia	High
Baghardia Pathar	High
Bherbheri	High
Sanpara	High
Tezpur	High
Bhogedia No.1	High
Derirtari	High
Gabarardia	High
Joypur	High
Kundulimari Tari	High
Sangrortari	High
Abhipara	Moderate
Aggumi	Moderate
Ambari Pam	Moderate
Bamunijhar	Moderate
Baniapara	Moderate
Bholapara	Moderate
Biturtari	Moderate
Chimina Gaon No.ii	Moderate
Dakhala	Moderate
Dhumgarah	Moderate
Dighalkuchi	Moderate
Hudumpar	Moderate
Jarabari	Moderate
Jarabari Pathar	Moderate
Jiakur No.1	Moderate
Jiakur No.2	Moderate
Kandalpara	Moderate
Karipara	Moderate
Keotpara	Moderate
Khena-alli-bari	Moderate
Kurua	Moderate
Marabhitha	Moderate
Murfuli	Moderate
Pacheniapara	Moderate
Panikhati	Moderate
Phuturi No.1	Moderate
Sapartari	Moderate
Sarania	Moderate
Singimari	Moderate
Solesala	Moderate
Tarigaon	Moderate
RANGIA	
Barkukuria	Very High
Jamtola	High
Bhaira	Moderate
Moranjana	Moderate
Teleranakuchi	Moderate

Kokrajhar District	
BAGRIBARI	
Bannyaguri Part Ii	Very High
Barabhita	Very High
Debattar Khopati Part Ii	Very High
Debattar Khopati Part Iii	Very High
Debitola Beel Block	Very High
Debitola Part I	Very High
Khutabagra Part I	Very High
Khutabagra Part Ii	Very High
Madati Paharbasti Part I	Very High
Madati Paharbasti Part Ii	Very High
Madati Paharbasti Part Iii	Very High
Madati Paharbasti Part V	Very High
Naigaon	Very High
Namdani Madati	Very High
Palashguri	Very High
Rangamati Hill	Very High
Sindurijhora	Very High
Ubrijhora	Very High
Alamganj Part Iii	High
Debitola Part Ii	High
Ropshi Part Ii	High
Changbandha Part I	Moderate
Iswar Panga	Moderate
Jalai Gaon	Moderate
Rajapara Part Ii	Moderate
GAURIPUR	
Silairpar Part Ii	Very High
GOSSAIGAON	
Majadabri Iii	Very High
Batpara	High
KOKRAJHAR	
Bangaldova Part I	Very High
Pukhuripara Part Ii	High
Damodarpur Part Iii	Moderate
Diplai Beel	Moderate
Kultungpara	Moderate
Malsingpara	Moderate

Lakhimpur District	
BIHPURIA	
Adhakhona No.2	Very High
Adhakhona Vgr	Very High
Bahgora Deori Gaon	Very High
Dhunaguri Khanikar Gaon	Very High
Gosai Pukuri	Very High
Japjup	Very High
Kandali Pathar	Very High
Pavo-de-reserve	Very High
Aunibari No.1	Very High
Bahgora Pathar	Very High
Dahghoria P.g.r.	Very High
Kanijan No.2	Very High
Kenduguri	Very High
Kumolia Chapori	Very High
Pavo-vekeli	Very High
Ahmedpur No.2	High
Sonapur No.2	High
Badati Alimur	High
Badati Miri	High
Bhulukaguri	High
Chenimora Kongkur No.2	High
Dhunabari	High
Purani Bahgara	High
Ahmedpur	Moderate
Badati Jamuguri	Moderate
Bangaligaon No.2	Moderate

Lakhimpur District	
Dahghoria Block	Moderate
Dahghoria No.2	Moderate
Gondhia Gaon	Moderate
Gondhia Gaon No.2	Moderate
Kalawni Batumchuk	Moderate
Khora Chapari	Moderate
Kutubpur	Moderate
Mornoi Gaon	Moderate
Nahoroni	Moderate
Aunibari No.2	Moderate
DHAKUAKHANA	
Baghedhapolial Gaon	Very High
Kapsangaon	Very High
Kukurajuja	Very High
Matmora	Very High
Moukhowagaon	Very High
Na-ali No.1	Very High
Tekeli Phuta Gaon	Very High
Tulshijan	Very High
Borbari	High
Dakhin Chapari	High
Dhela Pathar	High
Ghatapara Gaon	High
Kekuri Pomua	High
Lashmon Batomari	High
Lehera Miri	High
Tamargaon	High
Abhoypur	Moderate
Aken Digholi	Moderate
Akoria Matmora	Moderate
Alimur Dangdhora	Moderate
Amlakhi Dangdhora	Moderate
Baghedhapolial N.c.	Moderate
Bhandanagaon	Moderate
Bhiter Kopsan	Moderate
Bhoma Miri	Moderate
Bhomala Orgachu	Moderate
Borbil	Moderate
Borhola Chapari	Moderate
Dhenukhana Gaon	Moderate
Dighala Chapari	Moderate
Dimoruguri Dangdhora	Moderate
Duliagaon	Moderate
Ghatapara N.c.	Moderate
Gorojmari Chapari	Moderate
Jaroni Chapari	Moderate
Juyepura	Moderate
Kankan Chapari	Moderate
Khamon Ahom	Moderate
Khojua Mili	Moderate
Kondolguri	Moderate
Krishnapur	Moderate
Kushimari Chapari	Moderate
Mahdhowa N.c.	Moderate
Mainapara	Moderate
Medhisuti	Moderate
Moderguri Chapari	Moderate
Mohghuli Chapari	Moderate
Neogarghuli	Moderate
Pithial	Moderate
Poma Moderguri	Moderate
Telia Chapari	Moderate
Thekeraguri Dakhin Chapari	Moderate
Thekeraguri No.2	Moderate
KADAM	
Hindu N.c. No.4	High

Lakhimpur District

Pathalipam T.e.	High

N.LAKHIMPUR

Amguri N.c.	Very High
Daffala Kata Miri	Very High
Dhola Miri	Very High
Dulia Pathar No.2	Very High
Ghagormukh N.c.	Very High
Goroimari N.c. No.2	Very High
Kaniduar Miri N.c.	Very High
Ligiramukh	Very High
Mohaijan & Ghagor Pgr No.1	Very High
Mohaijan No.2	Very High
Mohaijan No.3	Very High
Mudoibil No.1	Very High
Mudoibil No.2	Very High
Na-ali Miri N.c.	Very High
Naharani Pathar	Very High
Pakania Miri	Very High
Proposed Buffer Area	Very High
Rantijan	Very High
Somdirimukh Achacakota	Very High
Amguri	High
Bhogman No.1	High
Bosa Pathar No.2	High
Dhenudharia Karchan	High
Howborah	High
Joyhing T.e.	High
Khoga Chandrapur	High
Kolitagaon	High
Na-ali Koiborta No.2	High
Na-ali Koiborta No.3	High
Patiemora N.c.	High
Bahpati	Moderate
Bamungaon	Moderate
Banmukh Balijan	Moderate
Borbil	Moderate
Bosa Pathar No.1	Moderate
Dhalnoi Chapori	Moderate
Dolabhanga	Moderate
Dulpata No.1	Moderate
Dulpata No.2	Moderate
Elengmora	Moderate
Ghagormukh Gualbari	Moderate
Gohaintakala	Moderate
Goroimari No.1	Moderate
Hindu N.c. No.2	Moderate
Hindu N.c. No.3	Moderate
Holoujan	Moderate
Kandoli Pathar	Moderate
Kharkhari Bakal	Moderate
Khoga Chapori No.2	Moderate
Khoga Jugalpur	Moderate
Mahora Borchapori	Moderate
Na-ali Pgr No.1	Moderate
Ohani N.c.	Moderate
Rajkhowa	Moderate
Singramari No.1	Moderate
Singramari No.2	Moderate
Somdirimukh Khoga	Moderate
Somdirimukh Khoga No.2	Moderate
Somdirimukh No.1	Moderate

NAOBAICHA

Joyhing Gaon	Very High
Dejoo Chapori	High
Dhekiajuli N.c.	High
Ghesek (joriguri) F.v.	High
Joriguri Pokonia F.v.	High
Pomua F.v.	High
Solmora	High
Sonapur No.2	High
Tatiamora	High
Bamungaon	Moderate
Gelahati No.1	Moderate
Kaoi Bhuruka	Moderate

NARAYANPUR

Homora No.2	Very High
Sonaribari Block	Very High
Sonaribari Block 3	Very High
Atua Chapori	Very High
Borati N.c.	Very High
Dhanguloi Pathar	Very High
Sonaribari Block 2	Very High
Bothakhona	High
Chelek N.c.	High
Kinapathar No.2	High
Kongbong N.c.	High
Mirigaon	High
Sonarigaon	High
Temera Miri	High
Borbeel N.c.	High
Dikrongmukh	High
Jamuguri	High
Mazor Chapori	High
Meromukh N.c.	High
Aunibari	Moderate
Bonpuroi	Moderate
Domar Doloni	Moderate
Haridah	Moderate
Homora No.1	Moderate
Major Chapori	Moderate
Nidanchua	Moderate
Pichala No.2	Moderate
Sribhuyan	Moderate
Anuboicha	Moderate
Chayang N.c.	Moderate
Sonaribari	Moderate
Sonaribari Block 1	Moderate

SUBANSIRI

Bahpara Chapari	Very High
Balahi Tamuli N.c.	Very High
Chakuli N.c.	Very High
Koreiguri Kachari	Very High
Koroiguri	Very High
Somdia	Very High
Ayengiagaon	High
Borbari Chenimari	High
Borbari Mayengia	High
Borbari Miri	High
Borkheliagaon	High
Champora Pomua	High
Charikoria	High
Chelajan Kachari	High
Kekuri Digholi	High
Patia Chapari No.1	High
Patia Chapari No.2	High
Sapekhati	High
Sonari Chapari	High
Ubhota Ayengia	High
Bilmukh	Moderate
Borkhamukh No.2	Moderate
Dakhingaon No.2	Moderate
Ghilamora Parghat No.1	Moderate
Ghilamora Parghat No.2	Moderate
Gorokhla Chuk	Moderate
Gorukhuti Kachari	Moderate
Gubindapur	Moderate
Hatigarh	Moderate
Kekuri Bebeija	Moderate
Kekuri Kachari	Moderate
Mahanibari	Moderate

Majuli District

BRAHMAPUTRA

Burachapori	Very High
Chomoimari	Moderate

MAJULI

Alengigaon	Very High
Baghmora Gaon	Very High
Barfakua	Very High
Bengena Kalia	Very High
Borgaya No.1	Very High
Borgaya No.2	Very High
Goalgaon	Very High
Hutar Gaon	Very High
Kalia Gaon (*Kolia)	Very High
Kalia Gaon	Very High
Lahalial Gaon	Very High
Mohkina Gaon	Very High
Namati	Very High
Namkatom (*Namkatoni)	Very High
Namoni Jokaibowa	Very High
Phalengi	Very High
Pokajora Miri	Very High
Ujani Jokaibowa	Very High
Chillakala Chapari	High
Arichaparai (*Erichapori)	High
Bhuramara No.3	High
Borachuk	High
Bornalani No.1	High
Jogigaon	High
Jorbil	High
Jugunidhari Gaon (auniati Satra)	High
Kerelagaon	High
Phutuka Pathar	High
Thakursuti	High
Koibarta Gaon	High
Malapindha Chilakala Miri	High
Malual Koibarta Miri	Moderate
Nagar Chuk (*Naganchuk)	Moderate
Bahogpur Miri (*Bhogpur Miri)	Moderate
Bhogpur Pathar	Moderate
Bornalani No.2	Moderate
Dekasensua	Moderate
Doriagaon	Moderate
Garamur Jogipathar	Moderate
Garamur Phutuki	Moderate
Garamur Satra	Moderate
Goalbari No.1 (*Goalabari no. 1)	Moderate
Goalbari No.2 (*Goalabaro no. 2)	Moderate
Gosaibari	Moderate
Jamudchuk	Moderate
Katonigaon Nasatara	Moderate

Majuli District

Malual Kolita	Moderate
Mohkhuti No.1	Moderate
Mohkhuti No.3	Moderate
Mokhuti No.2	Moderate
Pohumora	Moderate
Pokajora	Moderate
Rangachahi	Moderate
Sukansuti Mirigaon	Moderate
River	Moderate

UJANIMAJULI

Anaichuk No.1	Very High
Bheuchuk	Very High
Anaichuk No.2	High
Bokajan Mirigaon	High
Haldhibari	High
Jaborchuk	High
Jengrai Miri	High
Jogigaon	High
Latum Chuk	High
Phulani No.1	High
Abhaipuria	Moderate
Baghar Gaon	Moderate
Besamara	Moderate
Borbil Bebejia	Moderate
Chawrekia	Moderate
Gayan Gaon	Moderate
Gobor Chuk	Moderate
Jengrai Chapari	Moderate
Kandhulimari	Moderate
Karikchuk	Moderate
Kathalkhowa Pam	Moderate
Koturibil Khat Pam	Moderate
Maghua Chuk	Moderate
Major Deuri	Moderate
Phulani No.2	Moderate
Polongani	Moderate
Tatibari	Moderate

Morigaon District

BHURAGAON

Barpathar No.2	Very High
Barukata Saharia	Very High
Barukata Saharia	Very High
Besamaridoba	Very High
Bhakuamari Gaon	Very High
Bhuyanbari Pam	Very High
Dighali Ati Pathar	Very High
Gerua Ati	Very High
Haria Bil	Very High
Jamadari	Very High
Kamar Bari	Very High
Naljari	Very High
Pokalagi	Very High
Rajabari	Very High
Rowmari Gaon	Very High
Tengaguri	Very High
Banmuri Gaon	High
Barashi Bandha	High
Gerua Bil	High
Gosai Bari	High
Kanfolatua	High
Niz-gerua	High
Ouguri Pam	High
Patra Bari	High
Amaraguri	Moderate
Banmuri Bil	Moderate
Betail Mari No.2	Moderate

Morigaon District

Bhakuamari Pam	Moderate
Garapar	Moderate
Jengabori	Moderate
Phalihamari Pam	Moderate
Pokar Kata Gaon	Moderate

LAHARIGHAT

Baribandha	Very High
Boalguri	Very High
Chatian Toli	Very High
Dhup Guri Gaon	Very High
Jenga Dari	Very High
Laubhurunga Gaon	Very High
Mahdola Bori	Very High
Salsiga Bori	Very High
Sonari Gaon	Very High
Titatola Bori	Very High
Bhuyanbari Pathar	High
Dewa Guri	High
Haldhi Bori	High
Lelabori	High
Amaraguri	Moderate
Bagali Para Pathar	Moderate
Barchapori	Moderate
Barchola Gaon No.2	Moderate
Belbori	Moderate
Dewa Mari	Moderate
Dura Bandhi Bil	Moderate
Dura Bandhi Gaon	Moderate
Gariabori Gaon	Moderate
Gariabori Pathar	Moderate
Gurani Bori	Moderate
Kachari Bori	Moderate
Lahari Pam	Moderate
Lerua Mukh	Moderate
Lochana Bori	Moderate
Mahmara Bil	Moderate
Patia Bandha	Moderate
Patua Kata	Moderate
Sapkati	Moderate
Udkati	Moderate

MAYONG

Ashighar	Very High
Bahapahar	Very High
Balimukh (p.g.r.)	Very High
Bamunjari	Very High
Bangalpara	Very High
Baramari Pam	Very High
Barkarani	Very High
Barmari Pathar	Very High
Barmayong	Very High
Barmayong Pathar	Very High
Barpak Jungle	Very High
Barukata	Very High
Bebejiahabi	Very High
Belorbori	Very High
Bhalukaguri	Very High
Bhalukmari	Very High
Bilimora	Very High
Bohadoloni	Very High
Bordoloni	Very High
Borgarmari Gaon	Very High
Borjari No.1	Very High
Borjari No.2	Very High
Borkuloi Pathar	Very High
Bornoloni Pathar	Very High
Brahampur	Very High
Buraburi	Very High
Burgaon No.1	Very High
Burgaon No.2	Very High
Chanaka	Very High
Changmari Gaon	Very High
Chotagarjan	Very High
Dhankhunda No.1	Very High
Dhankuhunda No.2	Very High
Dhekiabari	Very High
Dibika	Very High
Diprang	Very High
Gagalmari Ashighar	Very High
Garaimari Gaon	Very High
Garjan	Very High
Gobhali	Very High
Gomariguri	Very High
Gomariguri	Very High
Gorokhiadhap	Very High
Gorumaradoloni	Very High
Guripathar	Very High
Hariabori	Very High
Hariapara	Very High
Hatibhangi Gaon	Very High
Hatigar	Very High
Hatiutha	Very High
Jhargaon	Very High
Kacharigaon	Very High
Kacharijan	Very High
Kahjuli Pathar	Very High
Kakarjalah	Very High
Kakuari	Very High
Kalbari	Very High
Kalsila	Very High
Kamarpur	Very High
Kamarpur Pathar	Very High
Kapaujari	Very High
Karatipam	Very High
Karchuabari	Very High
Kasasila	Very High
Katahjari Gaon	Very High
Katahjari Pathar	Very High
Kaurihagi	Very High
Khahuahabi	Very High
Khalanigaon	Very High
Khonajan	Very High
Kuranibari	Very High
Lacharibari	Very High
Lacharibari P.g.r.	Very High
Laukhowabari	Very High
Loonmati	Very High
Lowar Gaon	Very High
Majarbori	Very High
Maristitup	Very High
Marisutipam	Very High
Monoha	Very High
Monohakachari Gaon	Very High
Murkota No.1	Very High
Murkota No.2	Very High
Nabahatia	Very High
Nakrahabi	Very High
Natun Bangalbari	Very High
Niz Ghagua	Very High
Panikauri	Very High
Patekibari	Very High
Phaliamari Habi	Very High
Pobitra P.g.r.	Very High
Rajamayong	Very High
Sakatiputa	Very High

Morigaon District

Sakoti Puta Habi	Very High
Saru Manoha Bil	Very High
Sarubori Gaon	Very High
Sarukuloi	Very High
Satkhaporia Doloni	Very High
Satkhaporia Doloni	Very High
Sidhaguri	Very High
Sildubi	Very High
Soto Gamariguri	Very High
Teteliguri	Very High
Thengbhanga	Very High
Pabhakati	High
Bangalbari (1)	High
Baramari	High
Bharaltup	High
Chakumaku	High
Chatabori	High
Dimoruguri	High
Doyong	High
Forest	High
Forest	High
Gagalmari	High
Gagalmari	High
Gagalmari No.2	High
Katahguri	High
Mikir Pam	High
Poliguri	High
Sandahkhaity	High
Tanganbhangi	High
Baghjap	Moderate
Bangalbari (2)	Moderate
Belaguri	Moderate
Chanimari	Moderate
Darangia Gaon	Moderate
Dongabori No.1	Moderate
Gagalmari No.1	Moderate
Ghunucha	Moderate
Gorubandha	Moderate
Kharbil	Moderate
Khutradal	Moderate
Knmarkuchi	Moderate
Kuyadal	Moderate
Pachim Nagaon	Moderate
Rowmari Bil	Moderate

MIKIRBHETA

Bamunbari	Very High
Bheumuraguri	Very High
Boalguri	Very High
Ga-khajua	Very High
Palahguri	Very High
Sataribari	Very High
Barchakabaha	High
Garmari	High
Ghumati Gaon	High
Kalmowbari Gaon	High
Pag-hali	High
Paraliguri	High
Tamulibari	High
Bagari Guri	Moderate
Barsila	Moderate
Borhollong	Moderate
Deurabari	Moderate
Hatibat Simaluguri	Moderate
Kahu Ati	Moderate
Kapahera Gaon	Moderate
Khalapia	Moderate
Kuji Satra	Moderate
Rahdhala	Moderate
Sukdal Barbari	Moderate
Tarajan	Moderate

Morigaon

Ahatguri Pam	Very High
Alichinga	Very High
Bahakabari Gaon	Very High
Bahakajari Pathar	Very High
Bakharbari	Very High
Barati Gaon	Very High
Barbari Gaon	Very High
Barjalah P.g.r.	Very High
Barkhal	Very High
Barthal	Very High
Basandhari Gaon	Very High
Batabari	Very High
Beltalagaon	Very High
Bhagdova	Very High
Bhagdova Bil	Very High
Bhalukaguri	Very High
Block No.27	Very High
Block No.29	Very High
Block No.8 P.g.r.	Very High
Boragaon	Very High
Bowalguri	Very High
Chamkata	Very High
Charaiapam	Very High
Dachikabari	Very High
Dahali Makaria	Very High
Dahuti	Very High
Dhekiphalabari	Very High
Jarabari	Very High
Kalbari	Very High
Katalamarabari	Very High
Khanagharia	Very High
Kholapathar	Very High
Muladhari	Very High
Niz Khola	Very High
Palahguri	Very High
Pub Dharamtul	Very High
Ralipathar	Very High
Saru Mati Parbat P.g.r.	Very High
Saruduani	Very High
Silbheta	Very High
Udari	Very High
Athubhanga	High
Aujari Gaon	High
Baghara	High
Baghara Pathar	High
Bari Gaon	High
Barunguri	High
Bhairaguri	High
Buragaon	High
Chakadharabari	High
Dighalbari	High
Duani	High
Garmari	High
Kachamari Pathar	High
Katahguri	High
Malpota	High
Marakalong No.ii	High
Niz Dandua	High
Nowgaon	High
Ouguri	High
Pachim Bulla	High
Sidhabari	High
Airawat Beel	Moderate
Aujari Pathar	Moderate
Bakari Chapari	Moderate
Bangaldhora	Moderate
Basanaghat	Moderate
Belaguri	Moderate
Bhangamur	Moderate
Chaobari	Moderate
Chutiakhal	Moderate
Dakhin Dharamtul	Moderate
Dandua Bilartop	Moderate
Daraladubi	Moderate
Ghoramara Pathar	Moderate
Gunamara No.1	Moderate
Gunamara No.2	Moderate
Hagaltali	Moderate
Jerengabari	Moderate
Kaliajari	Moderate
Kanphalabari	Moderate
Lathabari	Moderate
Lochanabari	Moderate
Marakalong No.i	Moderate
Marigaon	Moderate
Meruagaon]	Moderate
Morakalong	Moderate
Mori Pachatia	Moderate
Naokata	Moderate
Pakamura	Moderate
Parajari	Moderate
Patidaya	Moderate
Patrabari	Moderate
Rajna Pathar	Moderate
Rupaibari	Moderate
Sapkati	Moderate
Singimari	Moderate
Sipiri	Moderate
Thekeraguri	Moderate
Uttar Dharamtul	Moderate

Nagaon District

DHING

Akarabari	Very High
Kobai Kata	Very High
Rowmari Pam	Very High
Batadraba Borhisa	High
Sonari Gaon	High
Ahom Gaon	Moderate
Bata Bari	Moderate
Batamari Gaon	Moderate
Bherbhcri Beel	Moderate
Borigaon	Moderate
Dhaniabheti	Moderate
Dhaniabheti Pathar	Moderate
Dhupa Guri Gaon	Moderate
Garia Kawaimari	Moderate
Gerekoni	Moderate
Jamuguri	Moderate
Kadomoni Gaon	Moderate
Kadomoni Pathar	Moderate
Magurmari	Moderate
Malekadhing	Moderate
Panbari Satra	Moderate
Paramibheti	Moderate
Polahjuri	Moderate
Rajabari Grant	Moderate
Saharia Gaon	Moderate
Saharia Gaon	Moderate

Nagaon District

Salkati Pathar	Moderate
Salnabari	Moderate
Slalaguri	Moderate
Sutar Gaon	Moderate
KALIABOR	
Bandardubi	Very High
Bihdubi No.1	Very High
Bihdubi No.2	Very High
Borghuli No.1	Very High
Borghuli No.1	Very High
Borghuli No.1	Very High
Borpeta Habi	Very High
Dakhin Deopani	Very High
Dalgaon	Very High
Dijoo Valley Colony	Very High
Dijoo Valley Gaon	Very High
Baghmari	High
Gakhirakhati No.3	High
Gakhirakhati No.4	High
Kawaimari	High
Kawaimari	High
Padumani	High
Borholagaon	Moderate
Darigaji	Moderate
Deopani	Moderate
Garubandha	Moderate
Jaokata	Moderate
Mothowkhat	Moderate
Namgaon	Moderate
Niz Misamukh	Moderate
KAMPUR	
Bagagarajmari	Very High
Bamunijan	Very High
Bandura Gaon	Very High
Barichuria	Very High
Bhalukaguri	Very High
Boruntuli	Very High
Charaihagi	Very High
Chaukhala	Very High
Dakhin Changchaki	Very High
Darangi	Very High
Deb Narikali	Very High
Deuripathar	Very High
Dighalipathar	Very High
Falihamari No.1	Very High
Garubandha Gaon	Very High
Garubat	Very High
Ghilani	Very High
Kachari Khanda	Very High
Kajiranga	Very High
Kawaimari Lalunggaon	Very High
Kochua No.2	Very High
Mahgarh	Very High
Manoram Pathar	Very High
Marisuti	Very High
Misamari No.2	Very High
Nam Kahunda	Very High
Pachim Kahiatoli	Very High
Pachim Kawaimari	Very High
Pachim Khalaibhanga	Very High
Pub Kawaimari	Very High
Pub Khalaibhanga	Very High
Raja-ali	Very High
Sarupathar	Very High
Tetlisara	Very High
Ujanmari	Very High
Uttar Narikali	Very High
Ali Tangani	High
Deurigaon	High
Dwapara	High
Gerjai Pam	High
Kalaikhowa	High
Kekuribari	High
Kekuribari	High
Kumbhirdubi	High
Opar Kahunda	High
Rangalubasti	High
Biringa Ati	Moderate
Chaibuk	Moderate
Chira Pathar	Moderate
Dhighali Bil	Moderate
Domaihagi	Moderate
Garubandha	Moderate
Hatikholi	Moderate
Hayong Basti	Moderate
Jok-kata No.1	Moderate
Kandapura	Moderate
Kawaimarigaon	Moderate
Kuhimari No.1	Moderate
Magurmari	Moderate
Majbarpathar	Moderate
Ramani Pathar	Moderate
Sonaruguri	Moderate
Sukati Puta Gaon	Moderate
NAGAON	
Borfakali	Very High
Chengmara	Very High
Gorehagi Bil	Very High
Kamar Gaon	Very High
Lawgaon	Very High
Nanoi Namkuri	Very High
Sokori Gaon	Very High
Uttar Godmariati	Very High
Birali Bebejia	High
Deodhar Gaon	High
Elengi Satra	High
Hatijajua Pathar	High
Kawaimari	High
Khuti Katia	High
Niz Hatichung	High
Phulani Ali	High
Borkandoli Mikir Par	Moderate
Chota Kandali Gaon	Moderate
Chota Rupahi	Moderate
Dakhin Gomari Ati	Moderate
Darangial Gaon	Moderate
Jalah Gaon	Moderate
Kakamari	Moderate
Kasupit	Moderate
Nam Patharia	Moderate
Niz Kachamari	Moderate
Polasoni	Moderate
Sutar Gaon	Moderate
RAHA	
Amtala	Very High
Bamunijan	Very High
Baz Batamari	Very High
Bhakatgaon	Very High
Bhumuraguri	Very High
Bundura Bil	Very High
Charaijarani	Very High
Chengajan	Very High
Dabalubil	Very High
Dablang Ati	Very High
Dakhin Petbahra	Very High
Dangaribil	Very High
Dhananjaidoba	Very High
Dharmukh Bil	Very High
Dighalidoba	Very High
Dwarika Phakali	Very High
Gandhibari	Very High
Hagaltali Beel	Very High
Hatigarh	Very High
Jorduba	Very High
Kajalajan	Very High
Kakatigaon	Very High
Khaparijarani	Very High
Kohiguri	Very High
Magurgaon	Very High
Namrangagara	Very High
Niz Jarabari	Very High
Pachim Salmara	Very High
Pahupuri Khaiti	Very High
Salmara	Very High
Seoguri	Very High
Takalatup	Very High
Tapatkarai Jalah	Very High
Tubuki Bardowa	Very High
Balijuri	High
Hatimura Beel	High
Kachua Gaon	High
Kamargaon	High
Kotahguri	High
Manuhpura Beel	High
Mothorbori	High
Naluba	High
Potakalong	High
Ramajangati	High
Bagalajan	Moderate
Balicharadalani	Moderate
Baligaon	Moderate
Bhatikuri	Moderate
Bundura Ati	Moderate
Darangi Gaon	Moderate
Dhowadaloni	Moderate
Guimari	Moderate
Kachadhara Beel	Moderate
Kamgaon	Moderate
Pub Bulla	Moderate
Saru Ameri	Moderate
RUPAHI	
Chenimari Bil	Very High
Chenimari Bil	Very High
Sutirpar	Very High
Chitalmari Bil	High
Chitalmari Bil	High
Dhing Bari Pathar	High
Ghahuachalchali	High
Kawaimari	High
Hatipukhuri	Moderate
Kadamani Town	Moderate
Lalung Goan	Moderate
Samdhara	Moderate
SAMAGURI	
Barchongjar	Very High
Bhakatgaon	Very High
Bharaguri No.1	Very High
Chalchali Jalah	Very High
Deuriati	Very High
Geraki	Very High
Hatirgaon Part I	Very High

Nagaon District

Kaziranga	Very High
Kumargaon	Very High
Rupahi Town	Very High
Balijuri	High
Kawaimari	High
Mohpara	High
Padumani	High
Phukankhat	High
Bhurbandha No.2	Moderate
Dakhin Beloguri	Moderate
Haiborgaon	Moderate
Magurmari	Moderate
Pahukata	Moderate
Puranigudam Gaon	Moderate

Nalbari District

BANEKUCHI

Nadla	Very High

BARBHAG

Barsimalia	Very High
Chatama	Very High
Deharkuchi	Very High
Kundar Gaon	Very High
Uttar Kuchi	Very High
Atrhgharia	High
Barbarara	High
Kalag	High
Khudrakulhati	High
Sanekuchi	High
Bardhanara No.2	Moderate
Dhurkuchi	Moderate
Sarubarara	Moderate
Tarmatha	Moderate

BARKHETRI

Adabari	Very High
Balarttari No.1	Very High
Bamanangardi	Very High
Barnibari	Very High
Bherakata Pam	Very High
Chaprapara No.2	Very High
Chungarbari	Very High
Galdighala	Very High
Kaltoli	Very High
Kolputa	Very High
Kularchar	Very High
Lowtola	Very High
Mugdi	Very High
Pachimkajia	Very High
Pub-kajiya N.c.	Very High
Saralpara	Very High
Sidalkuchilochima	Very High
Tilardia	Very High
Amarathari	High
Bamundittari	High
Barbala No.iv	High
Barbala No.v	High
Behelngimari No.i	High
Belbeli	High
Bhelakhaiti	High
Bhelamari No.2	High
Bhelamari No.3	High
Bhelengimari (a) Block	High
Bortola No.4	High
Chaprapara No.1	High
Dagapara	High
Gharathal No.1	High
Joysagar No.2	High
Kaldi	High
Kandhbari	High
Khagrakati	High
Khudrachinadi	High
Madhyakajia	High
Nadia	High
Natun Chaprapara	High
Puran Chaprapara No.3	High
Puranakhiya	High
Sobhamari	High
Sutarkuchi	High
Adattari	Moderate
Ahata	Moderate
Badaniakhiya	Moderate
Balarchar	Moderate
Bamunbari	Moderate
Bangnaputa	Moderate
Barbala No.i	Moderate
Barbala No.ii	Moderate
Barbala No.iii	Moderate
Behelngimari No.ii	Moderate
Behelngimari No.iii	Moderate
Bhelamari No.1	Moderate
Bhelamari No.4	Moderate
Bhelengimari (b) Block	Moderate
Bortola No.1	Moderate
Bortola No.2	Moderate
Damdama Pathar	Moderate
Darangipara	Moderate
Dirua	Moderate
Gariaanagaradi	Moderate
Gharuabaha Pathar	Moderate
Ghoga	Moderate
Howlighat	Moderate
Kalardia	Moderate
Kaplabari No.1	Moderate
Kekankuchi No.1	Moderate
Khalihapara	Moderate
Kharkaldi	Moderate
Kurihamari Chitalmari P.g.r.	Moderate
Larakuchi No.1	Moderate
Lauthari	Moderate
Lautolipara	Moderate
Meruttari	Moderate
Mukalmua	Moderate
Naptipara	Moderate
Narua No.1	Moderate
Narua No.2	Moderate
Peradhara	Moderate
Pub-kajiya	Moderate
Puranchaprapara	Moderate
Rampur	Moderate
Roumari Damdama	Moderate
Sapkata	Moderate
Tukarchar	Moderate

GHOGRAPAR

Kundar Gaon	Very High
Niz-borigog	High
Patkata	High
Balitara No.2	
Bar Bistupur	Moderate
Bhatkuchi	Moderate
Choto Alliya	Moderate
Dalbarikaniha	Moderate
Kekohati	Moderate
Madhapur	Moderate
Bardhanara No.2	Moderate
Dhurkuchi	Moderate
Madhapur	Moderate

PACHIM NALBARI

Kaihati	Very High
Khudrakhetribari	Very High
Solmari	Very High
Barhelasha	High
Kathala	High
Kheluwa	High
Larakuchi	High
Bhairaghal	Moderate
Gandhia	Moderate
Goalpara	Moderate
Godira	Moderate
Katnikuchi	Moderate
Khakrisal	Moderate
Pakhura	Moderate
Sukekuchi	Moderate

NALBARI

Dakhin Bezra	High
Khudrachenikuchi	High
Madhapur	Moderate
Parakuchi	Moderate

TIHU

Kendubari	Very High
Khudra Makhibaha	Very High
Naukuchi	High
Bakuajari	Moderate
Bamunbari	Moderate
Madhapur	Moderate

Sivasagar District

AMGURI

Ailamukh (Aila Habi)	Very High
Bailung Gaon	Very High
Bezgaon	Very High
Charingia	Very High
Demow Pathar	Very High
Deolia Gayan	Very High
Gharachua Kamar	Very High
Haluating Grant	Very High
Khemdoipukhuri	Very High
Mout Gaon	Very High
Namti Pathar	Very High
Namtial	Very High
Namtial Gaon	Very High
Salaguri (Salaguri 1)	Very High
Chirakhuada	High
Dhadumia	Moderate
Gharfalia Gaon	Moderate
Gohain Kur	Moderate
Rudra Sagar	Moderate
Senchua	Moderate

DIMOW

Bhekuri Chapari	Very High
Borapial Habi (Borpial Habi)	Very High
Borderoi Grant	Very High
Delopani Miri Gaon (Dolapani NC)	Very High
Deoriting Grant (t.e.) (Deuriting Grant)	Very High
Deroihabi	Very High
Dhiar Gaon (Dhyan Pathar)	Very High
Dighali Pathar N.c.	Very High
Fakalai Block	Very High
Fakalani Habi	Very High
Jiamari	Very High

Sivasagar District

Lal Bill	Very High
Machoi Gaon	Very High
Palengi P.g.r.	Very High
Patia Gaon	Very High
Rajabari Bagicha	Very High
Samukjan Miri (Samugjan NC)	Very High
Saragua Gaon	Very High
Saragua Grant	Very High
Saral Pathar	Very High
Saru Diroi	Very High
Saru Palengi	Very High
Mori Desang N.c.	High
Bordoloni N.c.	Moderate
Borpathar	Moderate
Chand Basa	Moderate
Dehing Kalghar	Moderate
Desang Diroi (Desang Diroi Habi)	Moderate
Kalmow N.c.	Moderate
Khangia Grant	Moderate
Teteli Guri	Moderate
NAZIRA	
Chetia Gaon	Very High
Handique Gaon	Very High
Mechagar Gohain	Very High
Mola Gaon	Very High
Mout Gaon	Very High
Namti Gaon	Very High
Borduar Mukh	Moderate
Chetia Handique	Moderate
Dhekeri Gaon	Moderate
Hulong Katom (Hulang Katoni Gaon)	Moderate
Labang Gaon	Moderate
Nazira Town	Moderate
Nowsalia Gaon	Moderate
Patar Gaon	Moderate
SIBSAGAR	
Akhoiphutia	Very High
Bagalhabi	Very High
Banmukh Chutia	Very High
Barhoiting	Very High
Bokabill	Very High
Boliaghat	Very High
Bor Patra Gohain	Very High
Chala Pathar	Very High
Chaulkara No.1	Very High
Chechur Khowa	Very High
Chengelibari	Very High
Cheni Mora	Very High
Da-gaon	Very High
Deghal Dariali	Very High
Demowmukh	Very High
Dhopaboria	Very High
Dhuliahabi	Very High
Dighali Habi	Very High
Dighalijan Gaon	Very High
Gandhia Gaon	Very High
Gohain Pathar	Very High
Gorkush	Very High
Jagara Habi (Jogora Hati)	Very High
Janmiri (Janmiri Borgaon)	Very High
Kathpara	Very High
Koijan	Very High
Kopouting	Very High
Kori Gaon (Kari Gaon)	Very High
Lapai Gaon	Very High
Longchai Habi	Very High
Loraputa	Very High
Malia Bheta	Very High
Motiari P.g.r.	Very High
Motok Gohain	Very High
Mout Bari	Very High
Mout Gaon	Very High
Nowjan	Very High
Nowjan Block	Very High
Nowjan Gaon	Very High
Panbesha	Very High
Patra Chetia	Very High
Rupahimukh Kumar	Very High
Rupahimukh Miri I	Very High
Rupahimukh Miri Ii	Very High
Tati Pathar	Very High
Gotanga Gaon (Gotonga Pathar)	High
Kowarpur P.g.r.	High
Mitong Na-katani	High
Rupahijan Gaon (Rupahijan Block)	High
Ajarguri	Moderate
Alichiga	Moderate
Balama Kaibarta Gaon	Moderate
Bharalua Gaon	Moderate
Gual Gayen Gaon	Moderate
Jagarahabi Mamol Miri	Moderate
Moglowpukhuri	Moderate
SONARI	
Kowar Gaon No.1	Very High
Mout Gaon	Very High
Gharaswa Gaon	High
Dighal Pachihabi	Moderate

Sonitpur District

DHEKIAJULI	
Alisinga Gaon	Very High
Belsiri Chapori	Very High
Borbhagia	Very High
Durabori	Very High
Karhana Gaon	Very High
Niz Borsola	Very High
Turipam	Very High
Balijan	High
Aliamabadjut	Moderate
Arun T.e.	Moderate
Chitalmari Pathar	Moderate
Ghogra Kachari	Moderate
Goroimari Pathar	Moderate
Hatibari Gaon	Moderate
Karhana Pathar	Moderate
Medhi Chuburi	Moderate
Medhipam Gaon	Moderate
Medhipam Pathar	Moderate
Natun Sirjuli	Moderate
Nichalamari Chapari	Moderate
Padumpukhuri	Moderate
Purani Jamuguri	Moderate
Sirajuli Gaon	Moderate
NADUAR_SONITPUR	
Dhekari Gaon	Very High
Kumargaon	Very High
Mohomora	Very High
Talakabari Bengali	Very High
Batiamari	Moderate

Sonitpur District

Hukai	Moderate
TEZPUR	
Bapubheti	Very High
Barpakhiajar	Very High
Baruadalani Gaon	Very High
Bhalukekhowa	Very High
Bhojkhowa Chapari	Very High
Gerua Gaon	Very High
Gerua Pathar	Very High
Kassuani Atigaon	Very High
Niz Biliaguri	Very High
Rangamati	Very High
Dagaon Pukhuri	High
Dai Dipotan Majpathar	High
Jorgarh Gaon	High
Kachari Pam	High
Kolachong	High
Nabil Kachari	High
Puthimari Pgr	High
Bhojkhowa Gaon	Moderate
Goraimari Borpukhuri	Moderate
Kalakhuti Kachari Gaon	Moderate
Mowamari Kalita Gaon	Moderate
Rajbhoral	Moderate
Renganijar	Moderate
Sopora Chuburi	Moderate
Uhani Pathar	Moderate
CHARIDUAR	
Dekargaon	High
Garakhia Pukhuri N.c.	High
Garakhia Pukhuri N.c.	High
Sarakhat	High
Amtol Bangali Gaon	Moderate
Barchas Gaon	Moderate
Bokagaon	Moderate
Dhekeri Gaon	Moderate
Ghoramati	Moderate
Hatidubi Gaon	Moderate
Hatipukhuri Gaon	Moderate
Kakalbhagi	Moderate
Lokra Dafala	Moderate
Miri Pathar No.2	Moderate
Moinajuli Grant	Moderate
Patgaon N.c.	Moderate
Phulguri Gaon	Moderate
THELAMARA	
Bamunpukhuri No.1	High
Bhara Singri	High
Simaluguri	High
Arasuti Gaon	Moderate
Bangali Gaon	Moderate
Bogapani	Moderate
Buragaruduba	Moderate
Changahiloi	Moderate
Dagaon	Moderate
Dhekeri Gaon	Moderate
Ga-aiwa	Moderate
Habigaon	Moderate
Habigaon Bangali	Moderate
Meghai Jarani	Moderate
Niz Borgaon	Moderate
Punioni	Moderate
RIVER BRAHMAPUTRA	
Dekargaon	High

South salmara District

MANKACHAR	
Barair Alga	Very High
Chirakhowa Kutirghat	Very High
Darua Kawahagi	Very High
Dewaner Alga Part I	Very High
Dewaner Alga Part II	Very High
Dewaner Alga Part III	Very High
Dumortola	Very High
Kalair Alga Palt I	Very High
Kokradanga Part I	Very High
Kokradanga Part II	Very High
Malir Alga Part I	Very High
Malir Alga Part II	Very High
Malir Alga Part III	Very High
Nepurer Alga	Very High
Niz-chirakhowa	Very High
Rangapani	Very High
Sukchar Part II	Very High
Uramari Part I	Very High
Uramari Part II	Very High
Bamunpara	High
Bangtimari	High
Chirakhowa Mahisghuma	High
Chirakhowa Tetlabari	High
Choto Haripur	High
Darua	High
Dharakoba Part II	High
Fatra Para	High
Ferangir Char	High
Gokulpur Tengmari	High
Jhagrar Char Part II	High
Jordanga Part II	High
Kanyamati	High
Khas Beel	High
Molakhowa	High
Musal Danga Part I	High
Assam Kata	Moderate
Berabhanga Part I	Moderate
Berabhanga Part II	Moderate
Bhurakata	Moderate
Chirakhowa	Moderate
Chirakhowa Bengarbhita	Moderate
Dakumari	Moderate
Dharakoba Part I	Moderate
Fuler Char Part III	Moderate
Gosaia Beel	Moderate
Tangaon Part I	Moderate
Jayfar	Moderate
Jhagrar Char Part I	Moderate
Jordanga Part I	Moderate
Kakripara Part I	Moderate
Kakripara Part II	Moderate
Kuchnimara	Moderate
Mankachar Town	Moderate
Manullapara	Moderate
Musal Danga Part II	Moderate
Pipulbari Part I	Moderate
Pipulbari Part II	Moderate
Pipulbari Part III	Moderate
Pipulbari Part IV	Moderate
Sreerampara	Moderate
SOUTH SALMARA	
Basir Char	Very High
Chaiter Char Part I	Very High
Chaiter Char Part II	Very High
Chaiter Char Part III	Very High
Charmonir Char	Very High
Choto Ravatari	Very High
Khodaidila	Very High
Khopati Part IV	Very High
Lowkhowa	Very High
Manirchar Mandererchar	Very High
Monirchar	Very High
Nizmanirchar	Very High
Salmara Part I	Very High
Sebaltari	Very High
Manirchar Damumara	Very High
Charkat Danga Part II (river Block)	High
Falimari	High
Gotabari	High
Katdanga	High
Baladoba	Moderate
Barbalu	Moderate
Boali	Moderate
Boali Part I	Moderate
Bramattar Berabhanga	Moderate
Katdangasatdubi Part I	Moderate
Katdangasatdubi Part II	Moderate
Khopati Part II	Moderate
Manirchar Baidergaon	Moderate
Rajabala	Moderate
Salmara Part II	Moderate
Teltari	Moderate

Tinsukia District

TINSUKIA	
Dharia Gaon	Very High
Pani Mudi Habi Gaon	Very High
Raidang Bangali Gaon	Very High
Sukan Pukhuri Gaon (part)	Very High
Assamiya Pathar	High
Gaharipam Gaon	High
Pani Khowa Bangali Gaon	High
Pani Khown Gaon	High
Tiograi Forest Village	High
Baruahhola Gaon	Moderate
Dimaruguri Gaon	Moderate
Hatitoopa T.e.	Moderate
Heveda Gaon No.2	Moderate
Kaptanchuk	Moderate
Kukurakhowa Gaon	Moderate
Makum Jn. Bengali	Moderate
Mamorani Gaon	Moderate
Salaguri Gaon	Moderate
DOOMDOOMA	
Lazum Gaon	High
Borachuk No.2	Moderate
Gotong Bengali	Moderate
Law Pati No.2	Moderate
Lazum Pather	Moderate
Longpit Khanda	Moderate
Namubon Gaon	Moderate
Phulbari Habi	Moderate
Purani Matupung No.3	Moderate
Sada Siva T.e.	Moderate
Samua Gaon	Moderate
Tamuli Gaon No.1 (unserved)	Moderate
Upper Kuli Pather	Moderate
MARGHERITA	
Hollong Gaon	High
Lakhipathar F.v.	High
Hollong Pathar N.c.	Moderate
Tingrai Forest Gaon	Moderate

Udalguri District

KALAIGAON_	
Bebejia	Moderate
Bhakatpara	Moderate
Bhakatpara	Moderate
Bokrajhar Gaon	Moderate
Chilabandha	Moderate
Kehartali	Moderate
Oarpara	Moderate
Tengabari Bagicha	Moderate
Tetaliguri	Moderate
KHAIRABARI	
Deoriapara	Moderate
Madeligaon	Moderate
MAJBAT	
Bhalukmari Jungle	Moderate
UDALGURI	
Bhalabari	Moderate
Rowta Bagan Railway Colony	Moderate

*Village affected Flood Hazard categories i.e. Very High, High and Medium are only presented in the hard copy of atlas. However, all the flood Hazard categories are available in digital version.

Disclaimer

The flood hazard zonation was carried out using available satellite data from NRSC. The satellite coverage may not correspond to the peak flooding in all cases. Further, not all river gauge stations need to record the peak situation on a single day. For states like Assam, where the topography is quite gentle, the flood inundation remains the same for a few days, even after the flood peak has passed. Hence, satellite data acquired resembles the peak situation most of the time. Observed flood inundation includes flooding due to embankment breaches, rainwater accumulation in low lying areas. Limited ground verification was also done where the satellite-derived flood inundation was well correlated with the ground situation

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Indian Space Research Organisation
ISO 9001 : 2015

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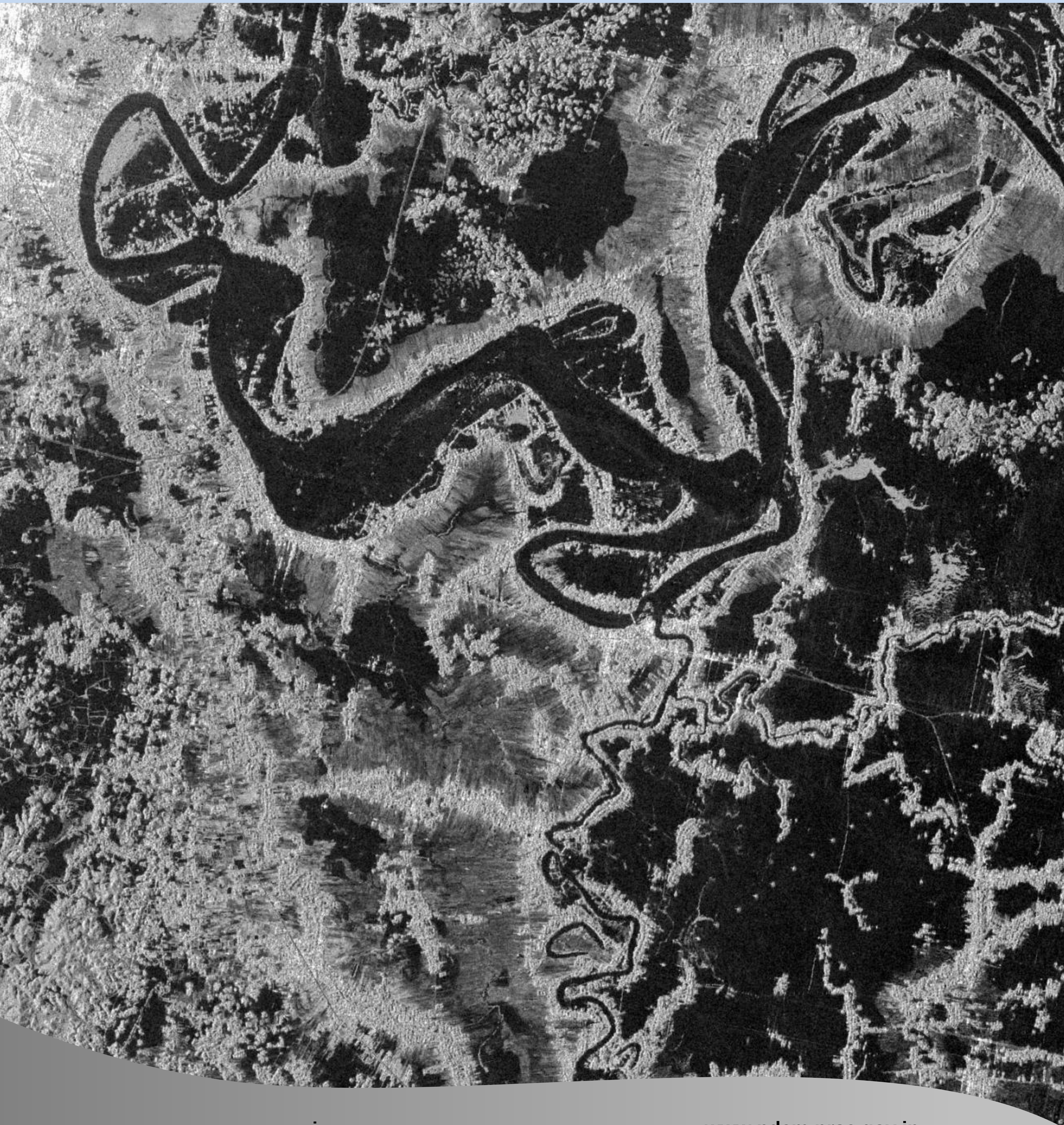

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